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9. ABSTRACT

A study of county-level developmental financing in Costa Rica showed that inadequate market research and cost/benefit analyses make the local officials susceptible to granting uneconomic loans.. A county government development unit--Instituto de Fomento y Asesoria Municipal (IFAM)--was established to provide long-term credit and technical assistance to local government units. Projects proposed for consideration by the IFAM included several for remodeling publicly owned food markets in rural towns. Funds borrowed by IFAM at 8% interest would be supplied to the cities, which would remodel their public market buildings and repay IFAM with income generated from rental of market stalls to private merchants. To assess those proposed projects, the author conducted a study of the market structure and food distribution system in two of the counties. The findings showed that even remodeled public markets in the cities will not compete well in prices and services with retailer-wholesalers in cities and small-scale grocery outlets in rural areas in the future. Thus the remodeling projects would be uneconomic, the renters of stalls would combine to maintain low rental fees, and the long-term return on the project loans would be less than half the cost of the loans. In effect, the IFAM would merely be subsidizing the merchants using stalls in the public markets of the cities.

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# AN ANALYSIS OF RURAL FOOD DISTRIBUTION IN COSTA RICA

By

Michael T. Weber

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ABSTRACT

AN ANALYSIS OF RURAL FOOD DISTRIBUTION
IN COSTA RICA

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Michael T. Weber

The distribution of food supplies in rural areas and related marketing costs are potentially important, although relatively neglected variables in agricultural development research. Residents of rural villages and towns purchase nearly all of their food supply. Very few "subsistence" farmers actually home-produce their entire food supply. And as farmers become enterprise-specialized, the economic and timely availability of a purchased food supply to complement perquisites from individual farms becomes increasingly important as an input into a more modern and productive farm-level transformation process.

In this study, work on a rural food market design and evaluation project in Costa Rica provided the opportunity to examine rural distribution processes. Major goals of the analysis were to develop a conceptual framework for studying rural distribution as a component of regional and national food systems and to bring about a better understanding of

underlying micro-marketing behavioral relationships operating in rural areas.

In Costa Rica, a county government development institute--Instituto de Fomento y Asesoria Municipal (IFAM) --was established to provide long-term credit and technical assistance to local government units. Projects to build or remodel county seat public food markets were quickly proposed to IFAM. The fieldwork portion of this study focuses on food distribution in two of the rural counties for which market projects were prepared. A market structure-conduct-performance framework of analysis was used as a research tool for looking at a "rural distribution subsystem" unit of investigation. Primary data were collected among core subsystem participants: urban and rural consumers, retailers, and wholesalers in each county. These data were analyzed for the purpose of (1) predicting and evaluating the impact of proposed public market projects in each county and (2) conceptualizing alternative reforms to solve existing problems and improve performance of overall county food distribution processes. A financial and economic or social benefit/cost analysis of proposed public markets was also done.

Findings of this diagnostic were that there are problems with the physical state of repair, general operation, and traffic congestion surrounding county seat public markets. Yet functions of these markets are declining and food merchants operating in them represent only one portion

of a more complex and dispersed retailing system servicing county residents. A large number of small-scale grocery outlets were identified in rural areas, and rural families were found to procure as much as half of their purchased food supply in them. Larger-scale retailer-wholesalers located in county seat central business districts were also found to be important components of the local distribution subsystems.

Major conclusions from the financial benefit/cost analysis are that the proposed new public market facilities would be poor investments. Internal rates of financial return were estimated to be less than 5 per cent on base-run calculations. From the economic benefit/cost analysis of primary and secondary (or dynamic) impacts of the proposed projects, it was also concluded that the investments were not advisable. Few socially desirable services could be realistically expected, both in terms of achieving narrow goals of improved productivity from market retailers and of achieving broader goals of improved performance from overall county food distribution processes, particularly from retailers outside public markets in rural areas and central business districts of each county seat.

A review of IFAM and individual county seat government project development and loan procedures concluded that IFAM ought to strengthen the analytical capabilities of project analysts and to be more attentive to establishing the

economic, financial, and administrative viability of specified projects.

Recommendations were formulated in four major areas:

1. Changes were suggested in the Naranjo and Puriscal market projects to solve existing problems with low-cost facility improvements and operations rule changes.

2. It was suggested that IFAM's market loan policy be altered to encourage counties to consider a a broader range of marketing projects than just public markets and that IFAM strengthen short-run capability to supply technical assistance, both on specific public market and more general rural food distribution problem identification and project design.

3. It was suggested that IFAM revise agency operational procedures for the project development and loan review process. A problem identification, project design, and final preparation process was recommended with specific steps to follow in each stage. The basic goal here is to develop and apply IFAM's technical assistance at strategic times, so as to influence the type of project request which eventually is considered for financing.

4. A final recommendation suggested future research to develop alternative rural food distribution reforms for Costa Rica and other developing countries. Emphasis was placed on studying the economics of rural retailing under existing and alternative product supply arrangements with county and regionally located wholesalers.

## ACKNOWLEDGMENTS

Field research for this study was completed while the author served as a marketing specialist with the Michigan State University and USAID-Costa Rica Mission marketing project in Costa Rica. Later analysis of data was done while the author worked as a research assistant in the Department of Agricultural Economics at Michigan State University.

Appreciation is expressed to these organizations and to the Costa Rican Government agencies supporting the marketing project (PIMA), particularly to the Instituto de Fomento y Asesoria Municipal. Thanks are also given to the PIMA project Director, Rufino Gil and staff analysts Carlos Cervantes, Alvaro Vargas, Vidal Gomez, Jorge Ramirez and Juan Ml. Villasuso, who worked closely with the author in the design, field work, analysis and extension stages of the work in Costa Rica.

Special acknowledgment and appreciation is given to Dr. Harold M. Riley, committee chairman, and Dr. Kelly M. Harrison, thesis advisor. Their guidance, critiques, and friendship contributed immeasurably to the dissertation and to the author's overall educational experience.

I also want to thank my wife, Karen, for her assistance in preparing the final manuscripts and, more importantly, for her encouragement and confidence throughout my graduate studies and this research experience.

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# CHAPTER I

## PROBLEM AND OBJECTIVES

Achieving abundant and nutritious food supplies for consumers of developing nations of the world involves much more than just expanding farm-level production. Supply must accommodate a demand not simply for goods, but for goods in conveniently accessible locations, in desirable assortments, of preferable qualities, and at particular times. Development research is beginning to recognize that food marketing and distribution processes providing these necessary services for large masses of urban consumers must be considered in conjunction with farm-level production activities as an integral part of the world food problem.

Unfortunately, the importance of purchased food and other marketing services for rural consumers is still largely unrecognized. A serious myth that farmers do not purchase food and embodied marketing services generally has resulted from using traditional terminology of subsistence farming (and even commercial farming concepts) to describe agricultural production processes. Farmers throughout the world obviously do raise food crops for home consumption. But even low-income and commonly designated subsistence

producers purchase in local markets and shops varying amounts of a number of food products.

People with the simplest tastes demand a certain variety and assortment of foods. Rarely are all of these home produced or even produced within one given local region of a country. And other rural residents--farm workers, commercial farmers, rural town residents, etc.--purchase in kind and in cash a majority of their food supplies.

Hence, even in subsistence economies exchange processes occur, and as the process of rural area growth and development begins to accelerate, small and large agricultural producers are increasingly drawn into more specialized exchange systems. Farmers not only sell but also buy food, as well as other consumer goods and agricultural production inputs. In fact, the economic and timely availability of nonfood consumer goods can act as an incentive for farmers to adopt output-expanding technologies to permit them to expand commercial sales from which they obtain income to purchase desired consumer goods.

The convenient availability of appropriate agricultural production inputs is an additional necessary condition for stimulating this growth sequence. But food for the farm family, particularly that portion purchased, is just as much an input into the agricultural production process as are land, seeds, fertilizer, and other inputs. Hence, how to facilitate the economic and timely availability of a nutritious rural food supply and related marketing

services is a potentially important element to be included among the set of critical variables in agricultural development research.

There has been little past research on this issue in developed or developing countries.[1] Thus, there is a need for both descriptive and problem-diagnostic information about rural residents' food supply habits and the marketing system operating to serve local demand for purchased food.

## 1.1 Problem Setting and General Study Objective

The field work and follow-up research for the present study was an exercise in rural food distribution project design and evaluation. It resulted from the author's participation in an applied economic problem-solving effort undertaken by a task force of Costa Rican technicians, with assistance from faculty members of the Agricultural Economics Department at Michigan State University. One of the jobs of this group was to conduct feasibility studies of various public food market loan requests by Costa Rican

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[1] The need for improved knowledge of rural distribution processes does not appear to be limited to Latin American and other developing countries. In his review of over 700 research efforts dealing with efficiency in various parts of the U.S. marketing system for agricultural products, Ben French concluded that this is a neglected area in the U.S., since there have been so few studies of rural retail service operations, such as farm machinery dealers, farm supply operations, and grocery stores. (See Ben C. French, The Analysis of Productive Efficiency in Agricultural Marketing--Models, Methods, and Progress (Davis, California: University of California, Department of Agricultural Economics, 1973), pp. 104-105.)

county governments and to undertake related extension work with national and county policy-makers.

Seriously inappropriate and ineffective agricultural marketing projects and programs, "white elephants," are often undertaken in developing countries. Research by the Latin American Market Planning Center, LAMP, in Latin America concludes that there is a strong tendency to place too much importance on providing physical "marketing" facilities and too much emphasis on macro market analysis in their design.[1] Analysis is too often based on inappropriate and/or incorrect assumptions about (1) underlying market system problems, (2) desired solutions, (3) micro-institutional and behavioral factors causing the problems, and (4) expected results which proposed projects will have on the behavior of causal variables.

A major goal of the present documentation and analysis of the Costa Rican experience in project design and evaluation is to bring about a better understanding of underlying micro marketing behavioral relationships operating in rural areas. This improved understanding could then provide a better foundation on which to conceptualize and study rural food distribution processes, and to design projects to improve the performance of this portion of the food system.

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[1]Kelly M. Harrison et al., Improving Food Marketing Systems in Developing Countries: Experiences from Latin America (East Lansing, Michigan: Michigan State University, 1975), p. 87. [hereinafter referred to as The LAMP Summary Report].

## 1.2 Phase One of the Research in Costa Rica

The opportunity for staff members of MSU's Latin American Market Planning Center to undertake applied research and extension activities in rural food distribution processes came about through a recent technical assistance contract with the National Institute of County (municipal) Government Assistance and Development (IFAM) in Costa Rica, Central America. IFAM began operation in late 1971, with the primary objective of technically and financially assisting county-level governments in carrying out reform and development projects. Costa Rica has no state- or provincial-level government, so its 80 county or cantonal government bodies take on local and many higher level public service functions. Fifty of these counties can be classified as "rural." Approximately 60 percent of the country's two million people live in these "rural" areas; i.e., farm, village, and county seat areas.[1]

[1]There is a difficult definition problem here. According to U.N. definitions of rural (cities of fewer than 20,000 people are rural), Costa Rica has only 10 counties with county seats classified as urban. Thus 70 of its 80 counties would have to be classified as rural. But according to the definition of the Census Bureau of Costa Rica, only five counties are strictly rural, and only five counties are classified as entirely urban. The remaining 70 have their county seats classified as urban, with the rest of the county as rural. Yet many of these rural areas are semi-continuous to urban areas and probably should be classified as urban also. And in contrast, many of the county seat communities classified as urban are distant from the major metropolitan region of the country and are thus "rural" towns or cities. More than half of the labor force in the entire county, and within the county seat towns, are either directly or indirectly involved in agriculture. This definition problem will be treated further in the

Upon beginning operations, IFAM received requests from some ten rural county governments to assist in financing the remodeling and/or construction of traditional public food markets. These were to be located in county seats; 25 of Costa Rica's 55 rural county seat towns presently have some kind of municipally-owned food market where space is rented to merchants and farmers (primarily to merchants) to buy and sell food and agricultural products. Often these markets are antiquated facilities; and the physical congestion within and around them, and in the surrounding central business districts, is growing rapidly. County policy-makers' perception of this problem was based on a traditional view of market organization. It was generally assumed that new and/or improved markets would meet present and future needs by first alleviating congestion and developing county seat central business districts and, second, by serving as market outlets for farmers, distribution nodes for wholesalers and retailers, and supply points for on-farm, village, and county-seat-located consumers.

Major problems facing IFAM were (1) how to identify needs for, and appropriate designs of, new or improved municipal market projects; (2) how to compare among these projects and the other local-level infrastructure and institution-building needs; and (3) how to begin to

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research. In the meantime it is important to remember that "rural" includes on-the-farm, village, and county-seat populations.

institutionalize within IFAM the capability to carry out adequate market project promotion and analysis. There was also a high degree of urgency to develop solutions to these, since IFAM had already committed itself (on the basis of feasibility studies by local engineering firms) to finance two markets. Together, these were to cost about $1 million (U.S.), which represented at the time approximately 20 percent of the total amount of their loan portfolio. So there was a critical question as to whether, as IFAM grew and expanded its loan commitment, it should continue to allocate such a large share of its resources to county seat public markets.

The LAMP project undertook a small technical assistance effort (12 man-months of resident consultant's and four man months of temporary consultants' time per year for two years) to assist IFAM and other cooperating agencies in studying and proposing possible solutions to these problems. A task force of local technicians from selected Costa Rican public agencies interested in agriculture and food marketing was formed and given the project title of Programa Integral de Mercadeo Agropecuario--PIMA. The author served for approximately two years as resident consultant to the project. During this period, the task force conducted in-depth case studies of three county seat public market loan requests and undertook related extension work

with county policy makers.[1] It also studied the need for a food industrial-wholesale complex and related activities to help rationalize the national food system.[2] Based on these background studies, the task force prepared for IFAM a summary diagnostic, suggesting changes in agency policy and methodologies of project evaluation for county-level food marketing projects.[3]

The county case studies were based on survey data collected from representative samples of resident farmers, food merchants, and consumers. Given available resources and time limitations, and with heavy emphasis on local staff participation and hand data tabulation, analyses were undertaken with a view towards (1) providing more accurate factual information about market participants and processes and their relative importance in rural county food distribution systems, (2) sharpening the set of general municipal

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[1] PIMA (Programa Integral de Mercadeo Agropecuario). Analysis Sobre el Mercado Municipal y la Zona Comercial en San Isidro de el General (San Jose, Costa Rica: IFAM, 1973).
_____, Estudio Sobre el Mercadeo de Alimentos, la Remodelacion del Mercado Municipal y la Terminal de Autobuses en el Canton de Naranjo (San Jose, Costa Rica: IFAM, 1974). [hereinafter referred to as the Naranjo Feasibility Study]
_____, Estudio Sobre el Mercadeo de Alimentos y la Remodelacion del Mercado Municipal en el Canton de Puriscal (San Jose, Costa Rica: IFAM, 1974). [hereinafter referred to as the Puriscal Feasibility Study]

[2] _____, Programas Para Mejorar el Sistema de Mercadeo Agropecuario en Costa Rica, Informe Preliminar (San Jose, Costa Rica: IFAM, 1973).

[3] _____, Proyectos de Mercadeo a Nivel Cantonal: Politica y Metodologia de Evaluacion para el IFAM, Informe Preliminar (San Jose, Costa Rica: IFAM, 1974).

market project design guidelines and keeping the obvious "white elephant" projects from being undertaken, and (3) getting underway the local institutional growth process to permit IFAM and other agencies to deal more effectively with future loan requests.

These more practical goals were largely achieved (as well as can be judged in the short run), particularly those relating to education and to the design of more realistic and economical projects. Publication of the three case studies gave local consulting firms a much clearer picture of rural county food marketing and how county seat public markets figure as one of many participating institutions. An architect on the task force gained valuable experience in designing functional, low-cost facilities for the cases that warranted new or improved market buildings.

## 1.3 Phase Two of Research: Longer-Run Focus on Rural Distribution and Country-Wide Food System Development

The research and advisory experience in Costa Rica was designed to primarily fulfill short-run needs of local institutions. Resources were relatively limited and the PIMA task force was pressured for recommendations on the market loan requests. Hence, all the data collected were not analyzed during the author's stay in Costa Rica, nor were local agencies enthusiastic about supporting projects to improve other dimensions of rural food distribution operations (other than public markets). Notwithstanding,

the experience focused attention on broader questions of the longer-run structure, conduct and performance of rural food distribution processes.

Fortunately, for beginning a longer-run and more comprehensive analysis, the surveys carried out contained more detailed data, especially those with farm-, village-, and county seat-located consumers, regarding procurement patterns and reasons for present shopping habits and preferences.

In addition, rural food distribution processes and the role they play in facilitating agricultural specialization, social articulation, and general rural development is beginning to receive attention from analysts in fields of rural sociology, geography, and economic anthropology, as well as from those in agricultural economics interested in rural development. But there have been few conceptual efforts to integrate this broad, yet functionally related, knowledge into a readily useful framework for problem-solving.

There is therefore, a need to carefully review, organize and analyze existing data from Costa Rica; and to use it as a basis to design new, more sharply focused analyses of alternative rural food distribution issues. Equally important, from a dynamic food system reform point of view, there is a need to use Costa Rican and other studies to better map out system-wide performance questions and to suggest and/or design additional avenues of analysis

regarding alternative institutions and behavior linked to these. Accordingly, the following are specific research objectives:

(1) To develop a conceptual framework for studying rural food distribution subsystems as components of regional and national food systems.

(2) To describe and analyze selected marketing structure, conduct, and performance conditions of two rural food distribution subsystems in Costa Rica and in so doing to examine vertical coordination and organization dimensions among rural participants, and between key rural and metropolitan distribution agents.

(3) To identify and evaluate a broad set of economic and financial costs and benefits of improving the performance of these rural subsystems via proposed public market facilities projects.

(4) To develop improved procedures and an outline of future research needs for identifying and better analyzing critical elements of rural food distribution reform programs and projects for Costa Rica and other developing countries.

## 1.4 Sources of Data

The author worked for approximately two years with PIMA technicians in designing, carrying out, and extending research results to relevant Costa Rican policy-makers. A considerable body of knowledge relating to rural and large urban area marketing processes was accumulated. Given time, resource limitations, and the more dynamic problem-solving expectation placed on the PIMA task force, large primary data collection efforts were not undertaken. Instead, researchers were encouraged to maximize use of secondary data sources and then to design more specific and concentrated studies. Costa Rican agriculture has been

generally well described in past research. Other marketing studies were also available, although their focus was somewhat static and largely descriptive. Nevertheless, these were very helpful in effectively designing selected purposive samples and making observations of critical market processes and participants.

The principal secondary data sources for the rural food distribution studies included the following:

A. Studies by several local engineering firms of public market feasibility in San Carlos, Grecia, Naranjo, and Limon Counties. These are discussed in detail in Chapter 5.

B. Work by an IFAM Regional Study unit provided information about physical conditions and infrastructure in rural and urban areas of the Valle de el General and Nicoya peninsula regions of the country.

C. When Phase One of the research was carried out, the 1973 Agricultural and Population Censuses were just being undertaken. Only partial and preliminary data were eventually available for the published Naranjo and Puriscal case studies. Phase Two includes more data from this new Census, since it was just published in late 1974.[1]

D. Considerable use was also made of the Census Bureau's 1963 and 1973 township census tract map.

The PIMA task force did undertake specific primary data collection for the Naranjo and Puriscal county case

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[1]Direccion General de Estadistica y Censos, Censo Nacional de 1973: Agropecuario (San Jose: Ministerio de Economia, Industria, y Comercio, 1974) [hereinafter referred to as 1973 Costa Rican Agricultural Census].

_____, Censo Nacional de 1973: Poblacion (San Jose: Ministerio de Economia, Industria, y Comericio, 1974) [hereinafter referred to as 1973 Costa Rican Population Census].

studies. Formal questionnaires and systematic sampling processes were designed for an urban and rural consumer and food merchant survey. Informal and semi-structured case interviews and numerous field observations were also completed with farmers, public market and other merchants, rural truckers, rural bus owners and drivers, and rural county government-elected councilmen. All of these, and even the consumer and merchant surveys, were mostly purposive in design; they were structured not to just describe and analyze each specific component of the rural subsystems, but to also understand the dynamics of interrelationships among local participants, felt problems, and possible policy alternatives.

Specifically identifiable primary data collection actions for Naranjo and Puriscal Counties include the following:

A. Utilizing business license records (patentes de comercio) and preliminary field surveys, the universe of retail and wholesale marketing agents was obtained. Categories and subcategories of these were derived, and approximately a 50 percent overall sample was completed.[1] Such a large proportional sample resulted because of the small number of merchants in each subcategory (whenever possible a minimum number sampled per subcategory was three) and

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[1]See Table A-1 in Appendix A for a complete listing of the universe and categories of merchants and the number of business surveys completed.

because virtually all public market retailers were included so as to carefully identify existing problems.

B. A retail food price survey was completed in 13 stores in each county and in two stores in San Jose. Actual purchases were made of a selected market basket of basic food items. This is described in Section 4.62.

C. Using Census Bureau township tract maps, an area-stratified, random sampling procedure was followed in conducting surveys of rural and urban consumer food consumption habits.[1] Approximately six percent of the households in Naranjo and four percent in Puriscal County were sampled. Parts of this data were hand tabulated in Costa Rica for Phase One of the research. During Phase Two the data were processed on the MSU computer using the Statistical Package for the Social Sciences--SPSS--program.

## 1.5 A Chapter Brief

In Chapter II a conceptual framework is developed for studying rural food distribution processes as independent units and as units relating to regional and national food systems. It identifies in both functional and geographical terms the participants and institutions who most directly influence economic activities involved in the distribution and consumption of the food supply and related marketing services of a country's rural population.

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[1]See Appendix A and Table A-2 for an explanation of the sampling plan and the number of surveys completed in each township.

Chapter III briefly reviews economic conditions and public policy forces for change in the large urban and national food systems of Costa Rica. The purpose is not to examine these variables in depth but to understand broader and longer-run basic conditions which pervasively influence the rate and direction of growth of rural areas and marketing processes.

In Chapter IV is a descriptive diagnostic analysis of two rural county food distribution subsystems. It examines farmer and other rural consumer, retailer, and wholesaler activities as an interrelated set in order to (1) predict and evaluate the impact of proposed public market reforms and (2) conceptualize and tentatively evaluate alternative reforms to more effectively improve performance of rural food marketing processes.

Chapter V identifies and analyzes county government, IFAM, and private consulting firm behavior towards public market and other potential reform projects. A financial and broad economic benefit/cost assessment is made of the proposed Naranjo and Puriscal projects (also a financial analysis of the Grecia project).

The overall research activity is reviewed and findings summarized in Chapter VI. Conclusions and recommended improvements are also formulated in three key areas: (1) specific Naranjo and Puriscal projects, (2) IFAM's food marketing policy, and (3) the county/IFAM project development and loan review procedure. A final important activity

here is to suggest future research to develop alternative rural food distribution reforms for Costa Rica and other developing countries.

# CHAPTER II

## A CONCEPTUAL FRAMEWORK FOR STUDYING RURAL FOOD DISTRIBUTION

The purpose of this chapter is to develop a conceptual framework for identifying and studying rural food distribution processes and problems. The goal is to expand existing food system and subsystem concepts which have focused primarily on large urban areas and their food sheds. Hence, the chapter will first review past research as it has approached food distribution and commodity marketing problems. It will then develop an enlarged paradigm of urban and rural distribution processes, and discuss the importance of studying the demand for rural purchased food and related marketing costs as variables in agricultural development. Useful marketing and geography dimensions of rural food distribution processes are then discussed. Finally, the structure-conduct-performance framework of analysis will be identified as the research tool for looking at rural distribution subsystem problems. And performance characteristics specific to these subsystems will be discussed.

## 2.1 A Food System-Subsystem Research Focus

Economic growth and structural transformation in developing countries requires complementary and often simultaneous changes in both agricultural production and marketing processes. LAMP and other researchers have begun to build such an integrated approach to problem diagnosis and reform actions.[1] Central to this work is the concept of a food production-distribution system. It is used to avoid the limitations of traditional agricultural production and marketing terminology which discuss "production" only in conjunction with farms and factories. In reality, production results at all levels of an economic system when any of the forms of utility are added to something; i.e., form, time, place, and possession utility. Distribution (traditional marketing) likewise takes place at all levels, since there must be tangible physical handling and intangible social exchange relationships established any time there is a degree of specialization and resulting transfer of goods and services among participants in an economic system.[2]

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[1] LAMP Summary Report, p. 116. See also the orientation of agribusiness commodity systems in Ray A. Goldberg, et al., Agribusiness Management for Developing Countries--Latin America (Cambridge, Mass.: Ballinger Publishing Company, 1974), pp. 3-8. Finally, see Norris T. Pritchard, "A Framework for Analysis of Agricultural Marketing Systems in Developing Countries," Agricultural Economic Research, Vol. 21, No. 3 (July, 1969), pp. 78-85.

[2] A. Schmid and J. D. Shaffer, "Marketing in Social Perspective," in Agricultural Market Analysis, ed. by Vernon Sorenson (East Lasning: Michigan State University, 1964), p. 16.

Combining concepts of production and distribution into a systems framework permits a clearer understanding of the interdependence of closely related activities. It facilitates a broader type of general equilibrium analysis in which a qualitative, if not quantitative, focus is put on feedbacks, critical hierarchical sequences, and external relationships. The strategic importance of organizing and coordinating traditional agricultural production and marketing activities becomes clearer.

Marketing processes are thus seen as economic coordination activities. Market coordination is defined as "the process in an exchange system whereby producers, distributors, and consumers interact to exchange relevant market information, establish conditions of exchange, and accomplish physical and legal transfer of economic goods.[1] Increased specialization is facilitated by improving market coordination processes, and thereby developing more productive and less costly (particularly less risky) linkages between production, distribution, and consumption of goods and services. This in turn is both necessary and inherent (although not automatic) in the transition from a traditional subsistence economy to a more productive and industrial economy in both urban and rural areas.

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[1]Kelly Harrison, "Agricultural Market Coordination in the Economic Development of Puerto Rico." (Unpublished Ph.D. dissertation, Michigan State University, 1966).

For analytical purposes, food production-distribution systems (or simply food systems) may be divided into three levels of focus:[1]

1. Farm or firm level
2. Channel level, which, for the present study, is further subdivided into
    a. Commodity subsystems
    b. Distribution subsystems
        (a) Metropolitan areas
        (b) Rural (town and country) areas
3. System level.

The channel level of analysis identifies a set of farms and marketing firms that perform value-adding processes through a closely linked sequence, with the aggregate result of each participant's contribution (of product and attached services) directed at satisfying final consumer demand. For most individual research efforts, this unit of analysis is still too complex to be manageable. Hence, there are two additional ways to subdivide the channel level, but to still focus on a meaningful group of related activities and not just totally independent ones. This involves separating overall channel activities according to the number of products handled:

(1) Vertically and horizontally by functions related to <u>one</u> product (like potatoes) or groups of similar products (like vegetables) passing through the channel or sequence of events involving production, distribution, and

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[1] <u>LAMP Summary Report</u>, p. 92.

consumption. These units of analysis are labeled "commodity subsystems."[1]

(2) Vertically and horizontally by functions performed on all food products by final channel organizations; i.e. consumers, retailers, wholesalers, and perhaps food manufacturers. These units of analysis are labeled distribution subsystems for purposes of the present study.[2]

Channel levels of analysis are thus subdivided into commodity and distribution subsystems. A major purpose of this chapter is to expand the food distribution subsystem concept to include rural as well as urban area participants. Before doing this, however, let us be clear that subsystem studies shift the focal point of analysis from farm and firms, acting as individuals, to one of them acting as a group exchanging products and services in order to satisfy a final channel demand. As Shaffer has written,

> It seems only logical to me that the important questions for economic research concern the organization of economic activity and that among the most

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[1] In marketing work in the United States, commodity subsystems as units of analysis are called subsectors, since their use grew out of the need to develop more productive and relevant approaches to problem-solving in a food and fiber sector that includes the complex of related units involved in the production and distribution of food and fiber. For purposes of the present work, subsystems and subsectors are terms to describe similar concepts. See James D. Shaffer, "On the Concept of Subsector Studies," presented at Technical Seminar on Subsector Modeling of Food and Agricultural Industries, Department of Agricultural Economics, University of Florida (March, 1970), p. 6.

[2] In the LAMP Summary Report, p. 95, these were called distribution channels. Distribution channels and subsystems have exactly the same meaning in the present study.

> important questions concerning economic organization are those involving the coordination of the sequential activities by which goods and services are produced and distributed. The importance and difficulty of vertical coordination increases as a sector becomes more productive through specialization. We have understood since Adam Smith that specialization in economic activity was an integral aspect of the growth process. New methods and technology are aspects of such specialization as is science which is a specialization in the production of new knowledge. Inherent in this system of progressive specialization is the necessity of continuously altering work roles and adapting the system of coordination to the newly created possibilities. As the production process is broken into finer and finer units the complexity of coordination problem increases.[1]

Given the general subsystem focus, two additional definitions help to clearly identify present research interests and to delineate useful first steps in organizing research to focus on rural distribution participants and processes:

(1) Vertical organization "refers to the structural anatomy of a subsector (subsystem). It includes the functions that are performed, the number of stages, the proprietary and authority structure, and the institutions and arrangements that are an integral part."[2]

(2) Vertical coordination, "on the other hand, is a process. It refers to those activities that integrate and synchronize the functional inputs of sub-sector (subsystem) in total response to market demand."[3]

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[1] Shaffer, op. cit., pp. 11-12.

[2] B. W. Marion, "Vertical Coordination and Exchange Arrangements: Concepts and Hypotheses," paper presented at Seminar on Coordination and Exchange in Agricultural Subsectors, North Central Regional Research Project 117 (Chicago, Illinois, November 14-15, 1974), p. 3.

[3] Ibid., p. 3.

A principle goal of subsystem research is to discover existing barriers to more effective vertical coordination. Removal of these bottlenecks is a necessary condition to improving production responses of all participants in specialized sequential transformation processes. Useful investigations should not focus exclusively on coordination processes, however, but ought to simultaneously identify vertical organization, or the details of structure and conduct of subsystem participants. Such a joint focus on structure, conduct, and performance issues facilitates problem diagnosis and more realistic solution design. This results because research both 1) discovers conditions of risky markets, unstable supply, wide price fluctuation, and other inadequate performance dimensions, and 2) provides understanding of existing and feasible alternative sets of incentives, standard operating procedures, information flows, and other public services which realistically could move the subsystem towards more desirable performance. This descriptive and diagnostic approach to problems is especially important for rural food distribution processes because so little is known about participants, functions performed, and the importance of services provided.

## 2.2 Past Research on Large Urban Distribution and Linked Commodity Subsystems

This and the next section separate overall food distribution subsystems into metropolitan (or large urban) and

rural subsystems. Using "urban" and "rural" as terms to define geographical areas is difficult, since these are such imprecise and often misunderstood terms. Rural areas, as commonly understood, contain farmers living in dispersed locations on small and large farms. But there are also various-sized nucleations or communities in rural areas. These include villages, small towns, and even small cities.

Urban areas, on the other hand, generally mean relatively big cities. The U.N. definition of "urban" starts at 20,000. Most people tend to think of cities of 50,000; 100,000; or larger when the term "urban" is used. Rural area villages, towns and small cities thus tend to be overlooked. Even worse, economic exchange relationships among farmers and small industrialists, artisans, and merchants located in small towns or cities are likewise often overlooked as relevant variables in agricultural and rural development processes.[1]

For these reasons, this study will explicitly refer to "metropolitan" or "large urban" centers when discussing communities of over 20,000 population. "Urban" will be used as a general term to refer to communities ranging in size from small towns and cities to the largest metropolitan

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[1]For a detailed discussion of this oversight, see Chapter 6, "The Critical Role of Market Towns in Modernizing the Landscapes of Underdeveloped Countries," in E. A. J. Johnson, The Organization of Space in Developing Countries (Cambridge, Mass.: Harvard University Press, 1970), pp. 178-207.

areas. "Rural refers to a small city or town, and the nucleated and dispersed population living in its surrounding countryside or hinterland. Rural counties will also be defined in Chapter III.

The LAMP and other approaches to food and agricultural system reform in Latin American countries developed through a primary spatial focus on metropolitan, or large urban, centers and their food supply area. This has been quite logical, since large urban areas in the region have grown so rapidly (Latin America presently averages a five percent yearly urban growth rate, but this varies considerably, depending on the country).[1] Large urban areas' demand for food grows even faster, due to income increases and high aggregate income elasticities of demand. Large city-located populations also have more immediate linkages to government. Consequently, strong political pressures are always present to provide adequate urban food supplies and related services at reasonable prices.

Rural-urban relationships have been examined in the context of the agricultural commodity subsystems serving these large metropolitan demand centers. Needs of farm-

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[1]With "urban" defined as localities with 20,000 or more inhabitants, in 1950, 1960, and 1970, the 20 countries of Latin America were 26, 33, and 41 percent, respectively, urban. These are average figures, however, and do not reflect a good deal of heterogeneity in the urbanization process of the nations making up the region. (See United Nations, "Population Trends in the 1960's in Latin America: Some Implications for Development," Bulletin for Latin America, Vol. XIX, Nos. 1 and 2 (1974), pp. 95-125.

level production and related product assembly operations are generally studied in order to discover ways to more efficiently and effectively (with less risk for all participants) connect them to major urban demand centers.

One reason for this focus is that work has centered largely on problems perceived by government agencies with whom urban technical assistance projects became affiliated in each country. And they, as a rule, have been more directly interested in improving large urban area marketing processes and commodity subsystems that serve these demand areas, than with the vertical and horizontal market processes serving consumers in rural market towns and their hinterlands.

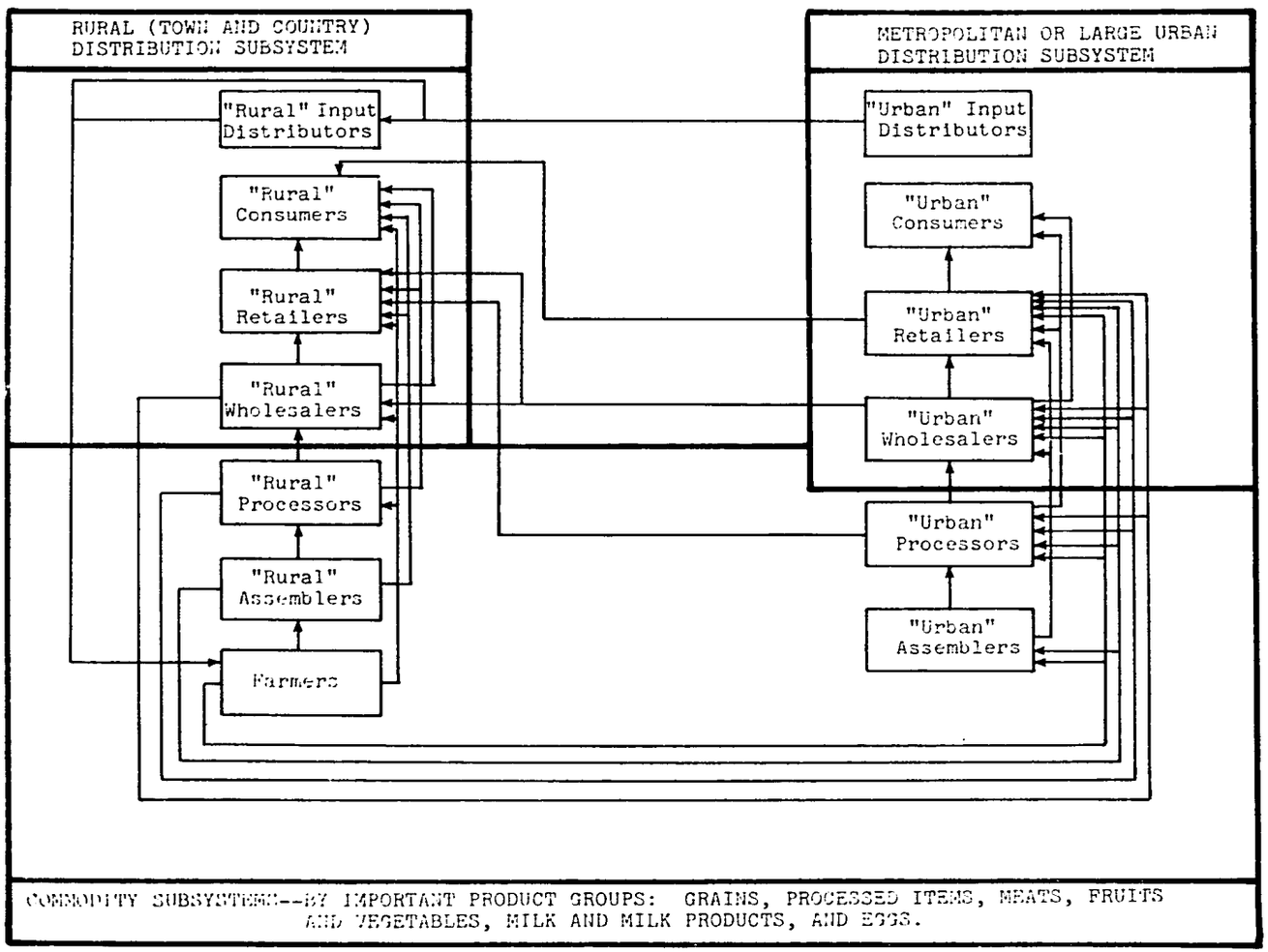
Another reason is the familiar question of selecting priorities. Given limited resources, it makes little sense to study in depth the more diffused and seemingly less important rural food distribution components without first learning of the functioning of the general food system and of some of its more centralized components, from which the major demand for farmers to produce a marketable surplus is generated.

Given the expanded body of existing knowledge of overall food systems in Latin American, it is now necessary to examine rural distribution processes and to better understand how these relate to large urban distribution and linked commodity subsystems making up regional and national economies. A beginning paradigm recognizing

rural distribution participants, as well as urban and commodity subsystem entities, is shown in Figure 2.1. This abstracts from specific market geography dimensions and multiple-commodity and distribution subsystem potentially existing in various regions of a given country. The figure is intended to show a more complete set of potential food system participants grouped into useful and manageable research units. And it forms a beginning estimate of feasible economic coordination and product/service flows within and among subsystems (shown by the lines connecting participants).

The figure can likewise be used to illustrate graphically how past LAMP analysis has concentrated geographically upon relationships within rural food production and assembly areas (shown in the botton half of the figure) and their major metropolitan demand center (shown in the upper right-hand side of the figure). It also delineates where rural food distribution participants fit into the system and allows for the possible supply of rural areas directly by local farmers or indirectly via large urban marketing agents, who are in turn linked into other production regions of a country. The following sections will further discuss the set of core subsystem participants and lay out basic marketing principles which tend to determine when these supply channels are appropriate.

FIGURE 2.1 RELATIONSHIPS AMONG COMMODITY AND DISTRIBUTION SUBSYSTEMS IN A FOOD SYSTEM



## 2.3 The Importance of Rural Food Distribution Processes

Rural food distribution subsystems are herein defined to be the set of participants and institutions[1] that most directly undertake or influence the economic activities involved in the distribution and consumption of the food supply and related marketing services of a country's rural population. Specific participants, institutions, and coordination processes which are investigated in diagnostic studies vary, depending on immediate problems and perceived organizational/institutional changes required. Yet there are a number of core participants and relationships that ought to be examined in order to clearly focus on relevant channel-level, vertical organization and coordination processes.

Figure 2.2 shows these central or core study components. Focusing on them as a highly interrelated set of activities helps to discover how limitations or improvement in one component influences others. It likewise helps to identify needed managerial/technological and institutional innovations that may be unprofitable or unavailable to individuals, but if somehow adopted simultaneously by all participants, would yield substantial subsystem-wide improvements. Overall subsystem results thus flow from the completion of many different but closely related functions by all participants.

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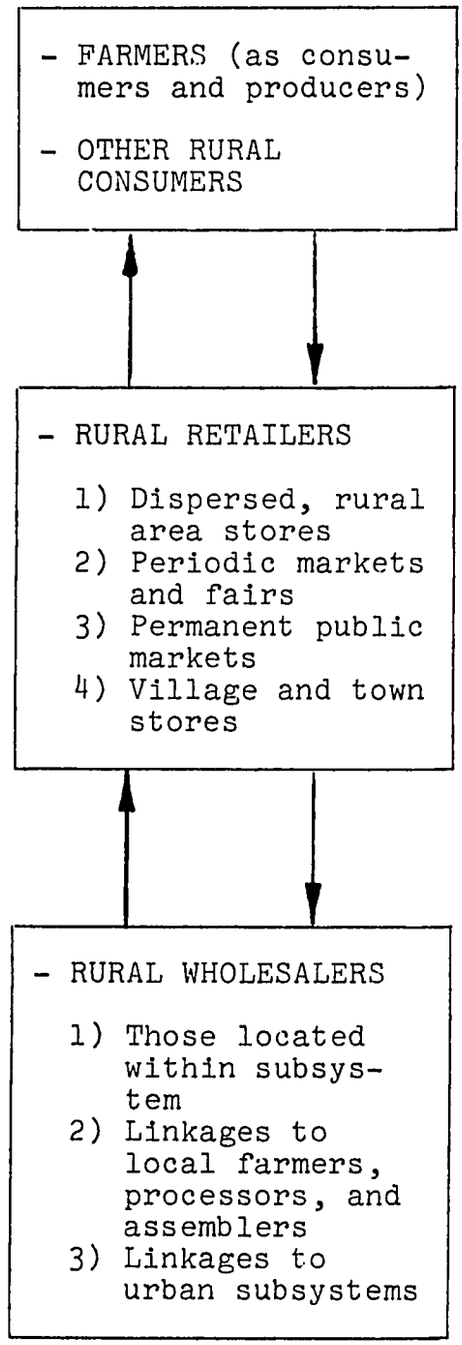
[1]Institutions are defined as the set of laws, rules, standard operating procedures, and both formal and informal public organizations influencing or directing behavior of participants in the system.

Figure 2.2 Important Participants and Processes in Rural Food Distribution Subsystems

- Public and Private Agencies and Institutions with Primary Impact on Subsystems
  1. Local government and public services
  2. Local laws, marketing rules, taxes, etc.
  3. National government and marketing-related services
  4. Specific agricultural development policies
- Physical Infrastructure
  1. In Rural Subsystem Region
     (a) Assembly and distribution markets
     (b) Stock yards and scales
     (c) Local grain storage
     (d) Roads and public passenger/freight transport system
  2. In Urban Regions
     (a) National road and transport system
     (b) Wholesale markets and processing/ storage facilities



Few past studies on rural marketing have focused on farmers, retailers and wholesalers as an interrelated group directed towards satisfying rural demand. Farmers' and other rural residents' demand for purchased food has noticeably been excluded as an important variable. Perhaps one reason for this is that there are almost no data series available in Latin American (and other) developing countries to even identify rural consumption, let alone to determine the relative importance of purchased product flows and marketing costs. Furthermore, it can be relatively expensive and difficult to undertake detailed primary survey research to quantify these, since the set of activities is surrounded by traditional behavior, complex buying patterns, and a rather extensive spatial dimension. Developing workable and economical approaches to studying these is therefore a necessary first step to reforms.

Unfortunately, there are two more fundamental reasons why rural demand for purchased food and related marketing services has not been adequately treated in agricultural development research. First, it is simply too readily assumed that farmers produce most of what they consume. Second, nonfarm residents of rural areas are too easily overlooked, since the term "rural" is generally associated with farming.

Consider the question of the source of procurement of rural food supplies for farmers. Much current and past research debates the composition of the ideal set of

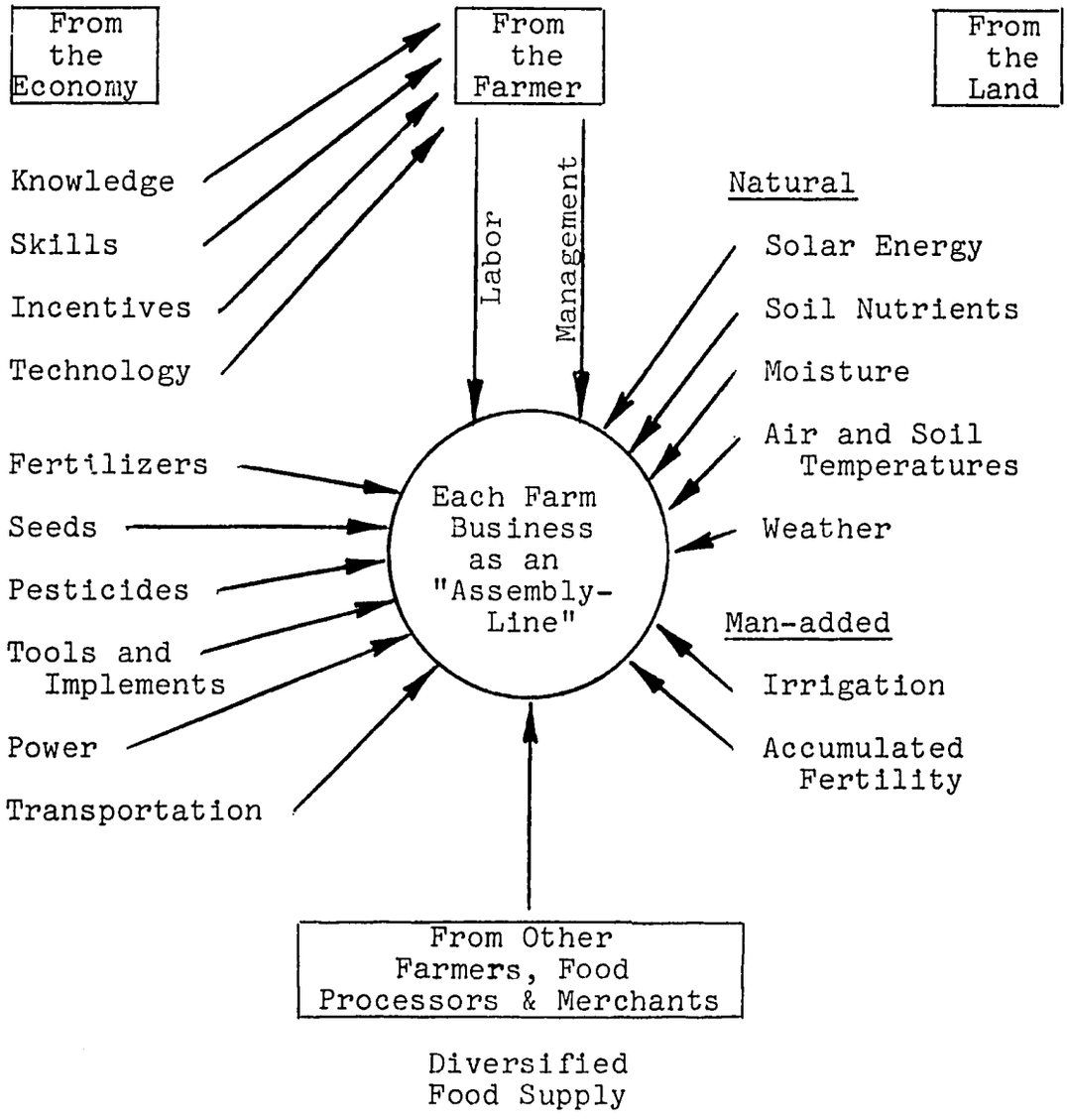
variables influencing developing country farmers' rate of adoption of biological and mechanical agricultural production innovations. Yet little mention is made of a possible correlation between the convenient and economical availability of a partially or completely purchased food supply, and farmers' willingness to adopt new yield-increasing and enterprise-specializing technologies.

Juxtaposed to this is a fundamental technical relationship: some degree of specialization is necessary to increase productivity. This in turn implies, for a farm unit, dependence on an outside source of supply for some or all of its food supply. Thus, food ought to be considered similar to fertilizer, improved seeds, and other necessary inputs into a more productive farm-level transformation process. In fact, the availability of a nutritious food supply for farmers may carry a higher priority than other inputs, because it helps produce the physical and mental condition in farmers both to work and to learn new work methods.

More modern agriculture in developing countries has been characterized by A. T. Mosher as a synthetic operation conceptually comparable to an assembly line of a factory.[1] As shown in Figure 2.3, inputs from the culture and economy, farmers themselves, land, and other farmers are brought together in a farm "assembly line." The input of

[1]Arthur T. Mosher, Creating a Progressive Rural Structure to Serve a Modern Agriculture (New York: Agricultural Development Council, 1969), p. 3.

Figure 2.3 Inputs From Various Sources into Modern Farming




Source: Adapted from, A. T. Mosher, Creating a Progressive Rural Structure to Serve a Modern Agriculture, New York: Agricultural Development Council, 1969, p. 2.

a diversified food supply from other farmers shown in the center bottom portion of the figure was not identified by Mosher. He did stress the need for a market center to provide an outlet for farm produce and make available to farmers critical inputs. A purchased food supply was not one of these inputs. Thus, a major argument of the present study is that this additional dimension ought to be added to the set of services considered vital in creating a "progressive rural structure" as suggest by Mosher.

LAMP and other research shows there is no automatic "free hand" process working to assure the evolution of a system of marketing agents willing and able to reduce risk and uncertain market conditions for small farmers. And it may be hypothesized that there is no similar reason to expect an automatic evolution towards an innovative and cost-reducing set of sellers of food to farmers and other rural residents. Farmers may therefore receive from their food marketing systems a double disincentive to adopt new agricultural technologies.

There is a growing body of evidence to suggest that farmers in Latin America need to be examined as food purchasers as well as producers. A Purdue University study of low-income groups in Brazilian agriculture shows, as would be expected, that farm-produced food consumption is a greater percentage of family income for land owners and

sharecroppers than for salaried rural workers.[1] Still for all groups of rural consumers studied, home-produced consumption represented less than one-third of total per-capita consumption. A case study of small farmers located on former haciendas (since the 1952 land reform program) in the Lower Cochabamba Valley, Bolivia, shows that in 1973, food purchases constituted 78 and 66 percent of food consumption for farmers in the two areas studied.[2] Larson found that farmers in various rural counties of bean-producing regions of Northeast Brazil, as a group average, spent 65 percent of discretionary farm family income on purchased food.[3]

Evidence from other areas of the world is likewise becoming available. Johnston and Kilby conclude that the ratio of cash consumption expenditures to production expenditures among farmers is relatively high during early periods of the structural transformation process in a country's agricultural and economic development.[4] In a

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[1]George F. Patrick and Jose Juliano Carvalho, Low Income Groups in Brazilian Agriculture: A Progress Report (West Lafayette, Indiana: Station Bulletin No. 79, Purdue University, 1975), p. 26.

[2]Joseph F. Dorsey, A Case Study of the Lower Cochabamba Valley: Ex-Haciendas Patrotani and Caramarca (Madison: Land Tenure Center, University of Wisconsin, 1975), p. 74.

[3]Donald W. Larson, "A Diagnosis of Product and Factor Market Coordination in the Bean Industry of Northeast Brazil," unpublished Ph.D. dissertation, Michigan State University, 1968, p. 95.

[4]Bruce F. Johnston and Peter Kilby, Agriculture and Structural Transformation (New York: Oxford University Press, 1975), pp. 76-85.

comparison of average cash farm expenditures on production and consumption goods in Ethiopia and Taiwan (data from 1967) and the United States (data from 1961), it was found that the ratio of consumption expenditures (e.g., purchased food, clothing, housing, transportation, services, etc.) to production expenditures (fertilizers, chemicals, seeds, livestock, power, etc.) was 2.45 in Ethiopia, 1.59 in Taiwan, and .71 in the United States. As part of this exercise it was concluded, "that it is in the early stages of structural transformation that agriculture has its major impact on manufacturing sectors and during early phases of this transformation, farm demand will have its greatest effect on sectors of the economy producing consumer goods (particularly food) rather than producer goods."[1]

Recognizing these linkages, Mellor's work indicates the importance of reform of marketing institutions and policy for rural areas, if employment-oriented intersectoral and interregional growth is to be achieved in India.[2] Interestingly, he is also one of the first to use rural demand for purchased food and other items as a basic parameter. From his simulation analysis, because low-income

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[1] Ibid., p. 74.

[2] John W. Mellor, The Impact of New Agricultural Technology on Employment and Income Distribution--Concepts and Policy (Ithaca, New York: Employment and Income Distribution Project Occasional Paper No. 81, Cornell University, 1976), p. 18.

rural consumers spend major increments of their income on basic caloric sources such as grains, Mellor concludes that for basic grains "production oriented policies of agricultural research, education, input supply, etc., are the first priorities for an employment oriented pattern of growth."[1] Yet his analysis of rural expenditure patterns also shows a major role played by non-food grain agricultural commodities and a potential role of increased demand for relatively labor-intensive manufactured goods. He thus points out that

> . . . once income and production increasing technical change for the basic food crop is underway increased production of nonfood grain agricultural commodities, such as vegetables and livestock products, become an early priority in an employment oriented strategy.[2]

And he suggests several important, related policy implications.

> Realization of the employment and growth potential in the non-food-grain agricultural sector requires growth in consumer expenditure, as it is necessarily a demand led growth, dominated by commodities with elastic demand patterns. That same characteristic implies growth in demand for non-agricultural commodities as well, providing a joint stimulus to several sectors of the economy. Because the demand for non-food grain agricultural commodities also tends to be highly responsive to price, rising relative prices will shift consumption readily to other commodities, thereby losing the employment potential of this sector. Thus it is important that agricultural policy be developed to remove the production and marketing bottlenecks in these sectors. Since breakthroughs in the basic food commodities may occur rapidly, a forward looking rural

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[1] Ibid., p. 17.

[2] Ibid., p. 18.

> development strategy will give early attention to livestock and vegetable production and marketing problems. Further, in a rural oriented strategy much of the growth in demand for such commodities will be in the rural areas themselves, requiring a further reorientation of marketing institutions and policy.[1]

In general, Mellor envisions a process of rural development formed around the concept of market towns giving rural spatial location to forces for change and growth; i.e., (1) increased demand for labor-intensive agricultural products for rural and urban consumption, (2) increased demand for local marketing services to coordinate and interconnect more specialized agricultural production regions, and (3) increased demand for labor-intensive manufactured and consumer goods industries which, it is hoped, will locate in rural areas.

Mellor's conceptual model thus focuses on expenditure patterns incident to increased income and the potential employment content in producing the goods and experiencing increased demand. This is quite similar to the LAMP-hypothesized sequence of changes in food system processes.[2] The major difference in the models arises from the source of additional income. For Mellor's model it is the direct effect of new agricultural technology on employment and income of farmers and rural laborers. In the LAMP model,

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[1] Ibid., p. 18.

[2] Charles Slater, et al., Market Processes in the Recife Area of Northeast Brazil (East Lansing: Latin American Studies Center Research Report No. 2, Michigan State University, 1969), pp. 1-2.

additional effective demand derives from reduced marketing costs and lower food prices for large groups of low-income urban consumers. Both models are still highly complementary and direct major attention to demand-induced growth linkages and the strategic importance of institutional innovations to facilitate the coordination of agriculture, industry, and trade sectors, both in rural as well as in urban settings. For these reasons both models help to justify the importance and to focus the scope of the research herein proposed on rural food distribution processes.

Let us now consider the nonfarm residents in rural areas as a final portion of this section examining the importance of rural food distribution processes. Not all people living in what are commonly called "rural areas" of Latin America are farmers. The U.N. definition of "rural" is any village, town, and city with less than 20,000 population, plus the actual dispersed farm population. By this, in 1970 sixteen of the twenty countries of the region had more than 50 percent of their populations classified as "rural." And in spite of migration and high urban growth rates, this population (due to its sizable rate of growth) is increasing in absolute numbers in almost all countries of the region.[1] Many other country-level statistical officers, of course, define rural at a lower

[1]United Nations, op cit., pp. 95-125.

population, say 5,000 or 2,500. But the point is, there are many village, small-town, and city populations in rural areas that have a majority of their populations deriving income from services and agriculture-related activities. These people do not produce their own food supplies, however. They purchase almost all of it, and performance resulting from their rural food distribution subsystem is an important, if not one of the most important, dimension of of overall welfare and rural development services.

## 2.4. Marketing and Geography Concepts

As identified in Figure 2.2, the suggested set of core retail marketing agents necessary for a subsystem analysis of rural food distribution processes includes traditional merchants located in various types of periodic and permanent market places. Many economic anthropology, geography, and marketing researchers have described and, to a certain extent, analyzed these marketing agents.[1] Generally, other rural retailers located in independent shops in dispersed rural areas, in rural villages, and rural towns have sometimes been recognized but not included, so as to study the entire universe of merchants as an interrelated set. Nor have the wholesale and direct farm supply processes of these rural retailers been studied. For this reason, herein-defined rural food distribution

[1] For an excellent topical review see R. J. Bromley and R. Symanski, "Marketplace Trade in Latin America," Latin American Research Review, Vol. IX, No. 3 (1974), pp. 3-38.

subsystems incorporate all local retailers and wholesalers and the primary procurement arrangements among rural and large urban merchants.

The suggested set of participants and coordination processes in rural distribution subsystems are constantly changing as local and national socio-economic variables evolve in a country. There are a number of basic macro and micro marketing principles (or concepts) which are helpful in understanding how and why changes take place. They also help focus research on relevant variables requisite to improving rural distribution processes.

Three general principles underlie the economic justification of marketing intermediaries: (1) minimum total transactions, (2) massed reserves, and (3) proximity.[1] Within each of these areas there are three more specific concepts of the economics of location and spatial interaction: (1) the threshold of a firm, (2) the range of a firm, and (3) the order or nature of an economic good.[2] Let us examine briefly how the interaction of these variables shapes changes in marketing processes.

Exchange is increasingly important as an economy specializes. We have already discussed the accompanied

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[1]Thomas A. Staudt and Donald A. Taylor, A Managerial Introduction to Marketing (Englewood Cliffs, New Jersey: Prentice-Hall, 1965), p. 223.

[2]Ronald Abler, John S. Adams, and Peter Gould, Spatial Organization (Englewood Cliffs, New Jersey: Prentice-Hall, 1971), p. 365.

demand for additional economic coordination. In order to achieve economies of scale in specialized production processes, problems of how to organize efficient physical distribution of goods and services are also critical. With large numbers of heterogeneous producers and consumers separated by time and distance, arrangements are required to reduce the number of contacts or transactions between them, and minimize the distance which buyers, sellers and goods must be moved. The principle of minimum total transactions considers that marketing intermediaries concentrate, store, and disperse goods and thus help to lower both time and transportation costs for producers and consumers. Conventional wisdom about traditional marketing techniques in rural areas often posits the need for a physical marketing place where producers and consumers can meet to exchange goods. But the role of local retailers and wholesalers located in these markets is often overlooked because the time they save producers and consumers is not considered; and because the need to efficiently connect one local market region to other local and national regions is not understood.

The principle of massed reserves allows for the role which market intermediaries play in reducing the total amount, and costs of maintaining product inventories in a marketing system. Production and consumption activities are not constant flow processes (particularly agricultural production) in more specialized economies. Inventories must

be maintained to provide an orderly and timely movement of goods between producers and consumers. Wholesalers especially play a key role by carrying massed reserves for forward and backward channel members, and by then responding quickly to user orders.

The concept of the "threshold" of a firm is defined as the minimum volume (price times quantity) of foods and services which a firm must sell before it becomes economical to enter into and continue in business. This minimum volume of a firm's operation is obviously influenced by demand variables such as the density of population within the firm's market area, the income and expenditure pattern of potential consumers, and local competition. Variables influencing the supply of marketing services and costs of operation are likewise important to determining the minimum volume of operation which a firm must have to operate. The timely and economic availability of massed reserves (or supplies) is perhaps the most important determinant of the ability of various rural retailers to lower operating costs and to expand operations to capture internal and external economies of scale. This is one of the main reasons why the universe of retailing and wholesaling operations is included in a subsystem unit of analysis. The type and degree of vertical coordination between retailers and wholesalers is one of the primary determinants of a firm's ability to expand its threshold.

The marketing principle of proximity considers the importance of time and place dimensions of product utility in the satisfaction of final consumer demand. Both of these characteristics of consumer demand in developing countries tend to be overlooked. Production is stressed, and it is usually assumed that goods will automatically be made conveniently available and in the proper assortment. But physical distribution and transaction closeness among buyers and sellers are necessary although increasingly more difficult and expensive to organize as an economy specializes. This is particularly true for rural areas.

The concept of the range of a firm is expecially important in that it specifically calls for study of the distance people will normally tend to go to purchase a good or service. This focuses research on modes of consumer travel and frequency of purchase as well as on the importance of locational convenience of goods and services. It also points to the need to consider the type of goods being sold. Marketing theory applied in developed countries has long recognized that consumers consistently express unique attitudes toward consumer goods. Shopping, convenience and specialty goods were thus defined, and the concepts used as a guide to the development of marketing strategies for manufacturers, wholesalers and retailers. Food is generally classified as a convenience good, i.e.,

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[1]Louis P. Bucklin, "Retail Strategy and the Classification of Consumer Goods," Journal of Marketing, Vol. 27 (January, 1963), pp. 50-55.

one which consumers purchase frequently, immediately, and with the minimum of effort. This simple classification has a pervasive influence on store location and food retailing strategy. Locational conveninence of food distribution services has been shown to be quite important in urban areas of Latin America, but virtually no research is available concerning rural preferences.

In addition to the above marketing concepts, a final necessary qualifying dimension concerns the geography of rural marketing processes. Hence, rural distribution subsystems are herein further defined by the geographical boundaries of local regions within a country--in Costa Rica, rural county government boundaries usually define this. This is done because farmers and other rural residents in developing countries, as a rule, do not interact socially, politically, and economically over the entire space of their particular national boundaries. Nor are they confined only to interest with their closest farm or local village neighbors. Instead, most of their personal exchanges take place within a local region that includes the immediate countryside, a number of smaller villages or towns, and one or two larger towns that function as local centers for public and private services.

A group of economic anthropologists have stressed the importance of studying rural markets as components of local socio-economic systems. They denote such regions as

horizontal or sectional markets, as contrasted to vertical or national network markets:

> . . . there [within local regions or horizonal markets] the "problem" is seen not at the level of the enterprise or the village, but at the regional level. For, in order to have the marketplace successfully serve as the source of goods missing from the inventory of any individual peasant, the regional production [and exchange] system must be working well.[1]

In many countries of Latin America, local regions are the territory enclosed within the county (municipio) government administrative unit. Although in the case of very small counties with few towns, the local region may include a group of counties. Whatever the boundary, the concept is that an identifiable local region constitutes the primary rural habitat in which residents define and carry-out a majority of the social and economic events in their daily lives, including the production and/or purchase of their food supply and other consumer goods. Hence, it is proposed that these local regions constitute separate food distribution subsystems made up of all rural and urban consumers, retailers, and wholesalers within the identified geographical boundaries. Aggregating across all subsystems

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[1]Martin Diskin, "Marketing Problems of Small Farmers," paper presented at the Agricultural Development Council, Inc./RTN Workshop on Small Farmer Marketing, East Lansing, Michigan, June 6-7, 1974; p. 2.

See also Carol A. Smith, "Economics of Marketing Systems: Models from Economic Geography," Annual Review of Anthropology, Vol. 3 (1974), pp. 167-201. In this excellent review article, Smith concludes: ". . .without the regional system context that geographical models can provide, anthropological marketing studies will not tell us a great deal more than we already know about the economic determinants of peasant behavior."

in a country will give a national macro perspective of rural distribution processes. Studying the detail of participants and processes within separate subsystems, and how various subsystems relate to each other, will give micro detail necessary to design realistic and workable national and local reforms.

Unfortunately, most past and present rural development research does not adequately deal with these local spatial dimensions, not to mention the suggested set of marketing agents. Some ten years ago an important research review article on rural settlement patterns and social change in Latin America concluded:

> As a minimum, effective planning of the location of rural technical and other services will require accurate information on the physical and human geography of the rural localities--including the size and location of settlement clusters, distribution of dispersed families, roads and trails, actual patterns of movement within the locality and functions of present gathering places. Up to the present, systematic information of this kind is remarkably scanty, except for the occasional localities that have been the subject of special sociological or geographical surveys. Large-scale mapping of the countries through aerial photography is only now in progress. Maps of the municipios, if they exist at all, are often inaccurate, and few censuses have distinguished the strictly rural nuclei in their tabulations.[1]

Probably too little progress towards the above has been made, in spite of the emphasis on rural development in developing countries. Knowing exactly where rural

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[1]Marshall Wolfe, "Rural Settlement Patterns and Social Change in Latin America," Latin American Research Review, Vol. I, No. 2 (Spring, 1966), pp. 35-36.

populations live and carry-out most daily events is fundamental to any economic analysis of providing food distribution, as well as health, education, and other public and private services.

Analysis of rural distribution problems will thus focus primarily on events within local regions. Notwithstanding this, there are obviously many forces operating outside local regions but having major impact upon processes going on within them. Recall that Figure 2.1 showed a rural distribution subsystem and the potential linkages it may have to commodity and large urban distribution subsystems. Changes in these will influence rural subsystems. Note also that Figure 2.1 abstracted from marketing geography dimensions, showing a simplified case of only one rural, urban, and commodity subsystem. In actuality, spread over the space of a country there would be many rural distribution units. There would likewise be overlapping rural distribution and commodity subsystems, since farmers both produce and consume food. These would relate to a few or perhaps only one metropolitan distribution subsystem.

To further examine these marketing exchange and geographical dimensions of how subsystems might relate, let us develop three alternative agricultural producing-marketing cases.

Assume on the one hand only one large metropolitan demand center in a country, many rural distribution and

commodity subsystems, and that the latter two are perfectly overlapping. Assume further that all farmers and other rural subsystem residents produce (on their own farms) 100 percent of their food supplies. There would then be no marketing linkages from farmers to consumers within the rural distribution subsystems, as shown in the left-hand side of Figure 2.1. There would likewise be no supply linkages to the rural subsystems from the metropolitan demand center. There might be rural assembly marketing agents and processes operating (and located within the local rural regions), but their function would be to channel local marketable surpluses to the large metropolitan demand centers via the potential exchange and coordination linkages shown in the bottom part of Figure 2.1. Overall, this case may represent what is commonly thought of as a rural subsistence economy, although it is doubtful if such an extreme case of subsistence exists anywhere in the world, particularly in Latin America.

A second case can be developed with a variation on the hypothetical situation outlined above. Allow some farmer specialization within each overlapping rural distribution and commodity subsystem. Thus, within the local region, marketing and coordination linkages would be necessary for local exchange. This allows farmers access to all food needed but permits them to produce larger quantities of fewer products and to trade or sell them to other local farmers. There would still be no supply

linkages into the rural subsystem, but there might be a marketable surplus available to channel to metropolitan centers. This case represents a diminishing degree of subsistence for a rural economy in which local periodic and permanent markets are important horizontal exchange facilitators.

For the third case assume the same metropolitan demand center, but that farmers and other rural subsystem residents are totally specialized, producing just one product. Here the entire array of participants and exchange-coordination linkages shown on the left-hand side of Figure 2.1 would likely be operating. In addition, the flow of a majority of food supplies to consumers in each rural subsystem would not be direct, as indicated by the linkages between commodity and rural distribution subsystems in the figure. Instead, supply channels would be indirect, with metropolitan distribution subsystems serving as processing and redistribution centers. The marketing principle of minimum transactions would become important. Given farm and local region enterprise specialization, the concentration, assortment-creating and redistribution functions of large demand center-located food processors and wholesalers would be critical to economically providing rural consumers (including farmers) with a complete variety of non-locally produced food items. Various degrees of this overall situation represent selected portions of many developing countries, the United States, and Western

European countries which are more specialized agriculturally and industrially but which still have populations living on farms and in small towns and cities in rural areas.

These alternative production-marketing case relationships are somewhat extreme conditions. Few, if any, countries fit exactly into either: many may have all three types existing simultaneously. It is commonly considered that developing countries lie mostly within the range of the first subsistence case and that rural purchases of food are minimal. In fact, very little is known about rural supply relationships, but information that is available does not support conventional wisdom. In fact, this knowledge suggests that an economical supply of purchased food may be an important input into more progressive agricultural production processes. It is therefore important to first identify exactly where developing countries' food systems lie along such a food system continuum. More importantly, it is necessary to better understand the organizations and institutions which help to facilitate movement along the continuum, since both improved production and marketing systems are inputs into agricultural and economic development.

## 2.5 Performance Characteristics

The present study uses a subsystem unit of investigation. Following Shaffer's concept, it seeks to identify,

describe, analyze, and prescribe solutions to problems. A structure-conduct-performance framework of analysis is used as the research tool in looking at subsystem problems. Structure is defined as all of the players of the game or subsystem of interest, and the predetermined social, economic and natural resource characteristics which constrain them. Conduct is the different choices, behavior or standard operating procedures, and strategies, adopted by the players, given their constraints. Performance is the result or consequence of the players' choices as payoffs to playing in the game.[2] Performance can be a cause (over time) and result of both structure and conduct. All are influenced by the flow of information, products, services, and incentives among the players of the game. Performance is not judged just against structural norms of pure competition, but against broad economic and social goals of a country and against what is attainable through alternative ways of organizing the system or subsystem.[3]

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[1]James D. Shaffer, "On the Concept of Subsector Studies," p. 9.

[2]Stephen H. Sosnick, "Towards a Concrete Concept of Effective Competition," American Journal of Agricultural Economics, Vol. 50, No. 4 (November, 1968), pp. 836-838.

[3]Harold M. Riley et al., Market Coordination in the Development of the Cauca Valley Region--Colombia, Research Report No. 6. Latin American Studies Center (East Lasning: Michigan State University, 1970), p. 7.

Determining which specific structure and conduct dimension to study begins with the question of desirable performance, or the set of consequences resulting from the overall functioning of a food production-distribution system. The LAMP approach to food system diagnostic and reform work developed within the framework of three principal societal goals of growth or progressiveness, employment and equity. These more general goals are translated into nine more specific food production-distribution system objectives.[1] The present research will use the latter as general points of reference in considering performance dimensions relative to rural food distribution subsystems.

The first of these objectives is "to achieve an abundant, nutritious, and reliable food supply at economic prices." It has particular significance for rural areas because farm and regional enterprise specialization eventually lead to regions of countries not being locally self-sufficient in all food necessary for a nutritious diet. This may provide the lowest cost food supply for large urban-area consumers, but it may also make it more difficult and costly for each local area to acquire an adequate variety of products. Hence a major element of the rural food distribution subsystem's performance is how qualitatively and economically it provides a food supply to its consumers.

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[1] LAMP Summary Report, p. 9.

The second objective is "to promote and facilitate the production and distribution of the combination of food and related services that best reflect consumer preferences and the real relative production costs." This deals with the efficient reflection of production costs and consumer preferences through the different participants in the food system. It is of particular significance for rural-area consumers, since their more dispersed locations implies, over time, higher food distribution costs, especially for transportation. Due also to lower density of demand, to achieve economies of scale in providing rural distribution service, it may be necessary to permit geographical monopolies to retailers, wholesalers, and others. So market transparency and effective competition considerations are also important performance dimensions for these areas.

The third is "to stimulate the development and adoption of improved technologies and organizational arrangements that will lead to increased resource productivity in all aspects of food production and distribution." It has already been hypothesized that the lack of an economical and nutritious local food supply may tend to discourage farmers from adopting new technologies and from increasing their degree of enterprise specialization. Given the more dispersed and potentially lengthy distribution channels of rural subsystems, it is imperative that new organizational arrangements evolve among rural retailers,

wholesalers, and others in order to lower costs of operation and improve productivity. New rules, regulations, and infrastructure to facilitate maximum use of least cost transportation techniques are especially critical for developing countries facing high and increasing energy costs.

The fourth general performance dimension is "to stimulate the creation of productive and remunerative employment opportunities." Trade and service activities are generally considered as residual employers in both urban and rural areas of developing countries. This is probably true, although it does not mean that this type of employment is as productive or remunerative as it could be if the economic and social system were organized differently. Yet many marketing functions are by their nature labor intensive, and the accurate reflection of factor costs in developing countries will likely make them even more labor intensive. This does not, however, preclude emphasis on the need to seek out improved food production-distribution system coordination and physical exchange mechanisms that increase overall system output and employment but reduce specific jobs in certain components. This particularly holds for rural areas where policy-makers may be reluctant to foment changes that might reduce immediate employment in petty distribution activities.

The fifth is "to increase the level of farm income and improve the relative income position of small farmers."

It relates to two specific aspects of the performance of rural food distribution subsystems. Farmers are also consumers, and the extent to which real costs of purchased food can be reduced will directly increase their real income. This is obviously more important, relatively speaking, for small farmers and farm laborers, since a large part of their cash income may go for purchased food. Small farmers may also directly provide selected food crops for local region consumption, while larger farmers may tend to be more specialized and coordinated with larger scale demand generated by large urban consumption areas. Over time, however, small farmers may find it increasingly difficult to compete as local suppliers if they follow traditional organization and institutional mechanisms. As more products and amounts of food processing become available, local retailers and wholesalers will tend to procure an increasing amount of their goods from large urban area suppliers, who provide assortment and related services. There may be certain food crops which small farmers could supply directly to local outlets, but it may be more difficult and risky for local distribution agents to deal with them, particularly as individual producers. The resulting supply may not be of consistent quality and quantity. Outlets may thus choose to procure all supplies from large urban sources. Therefore, alternative organizational and institutional mechanisms for coordinating small

farmers with local demand may be necessary to keep small producers viable.

The sixth is "to create the conditions necessary to ensure the development of equitable and competitive exchange relationships in agricultural markets." This has already been discussed in points 2 and 5 above, although it is restated here that performance of the rural distribution, as well as commodity subsystems, has significant equity considerations for rural consumers and small farmers, vis a vis, metropolitan area consumers and larger farmers.

The seventh is "to discourage uneconomic use and spoilation of natural resources and the environment." To the extent that a relatively expensive and nutritionally inadequate purchased food supply is the only available alternative to farmers, they may choose to remain crop and livestock diversified producers and hence not achieve a more optimal level of production from their basic land resource.

The eighth performance dimension is "to encourage desirable population settlement patterns." Improved performance from rural food distribution subsystems is the only one among many factors affecting population migration by local residents; but it is still important, and perhaps more so for rural settlement patterns where the availability of good commercial services may attract shoppers from other nearby small towns and dispersed rural areas.

Over time this could have a major impact on which rural communities expand and which tend to die out.

The ninth is "to foster a sense of belonging and participation among food system participants." In rural areas this has been one of the basic social, as well as economic, functions of traditional periodic markets, fairs, and other exchange institutions. This is probably one strong reason why many local policy-makers identify rural markets as such important infrastructure needs. There may be other ways to provide for this, but without specific consideration of it as an important performance dimension, these will not be searched for.

This discussion of performance has only begun to identify a complex set of interrelated consequences that flow from the combined actions of the set of selected marketing agents and consumers operating in a rural food distribution subsystem. It is obviously impossible to describe and analyze (in quantitative detail) existing vertical organization and coordination processes in light of each of the potential dimensions outlined. In a systems approach to problem-solving, it is necessary, however, to recognize that results are complex and may often be in conflict. Likewise, projects to alter subsystem performance will have varying importance on each of the broad sets of consequences; and at least qualitative efforts must be made to predict these for use by policy-makers expected to arbitrate final decisions on public and private preferences.

# CHAPTER III

## FORCES OF CHANGE IN COSTA RICA'S NATIONAL FOOD SYSTEM

In order to identify manageable research units, the boundaries of rural food distribution subsystems defined in Chapter Two are drawn to exclude detailed analysis of large urban and national food system variables. Given the potential influence such forces have, however, the purpose of this chapter is to briefly identify and examine national income and population characteristics. In the longer-run, changes in these basic conditions have significant implications for the rate and direction of growth of rural (and large urban) food distribution processes. The chapter will also examine recent national public policy moves to strengthen the agricultural section and county governments in order to develop rural areas.

### 3.1 Income Growth and Structural Change

The Costa Rican economy has a record of consistent and impressive growth over the past 20 years. Through the decade of the 1950's, its Gross National Product (GNP) grew by an annual average of 6 percent. In constant 1960 terms it had a 6.6 percent yearly growth over the period 1963-73 (Table 3.1). And given yearly population growth of 3.0 to 3.5

Table 3.1 Composition and Percentage of Change of Gross National Product (GNP) in Millions of Colones for Selected Years

| Sector | 1963 | | | 1967 | | 1973 | | 1978 | | 1978[4/] | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Value GNP 1960 Colones | Percentage of Total GNP | Percentage of Change 1963-1967 (Annually) | Value GNP 1960 Colones | Percentage of Change 1967-1973 (Annually) | Value GNP 1960 Colones | Percentage of Change 1963-1973 (Annually) | Value GNP 1978 Colones | Percentage of Total GNP | Value GNP 1978 Colones | Percentage of Change 1978-1978 (Annually) |
| Agriculture | 762.9 | 26 | 5.0 | 929.0 | 5.0 | 1,243.1 | 5.0 | 1,626.2 | 20 | 2,126.0 | 5.5 |
| Mines and Industry | 503.7 | 17 | 9.5 | 724.9 | 7.4 | 1,110.3 | 8.2 | 1,706.0 | 20 | 2,818.0 | 10.6 |
| Construction | 167.4 | 6 | 2.8 | 187.4 | 9.6 | 325.6 | 6.9 | 465.4 | 6 | 742.6 | 9.8 |
| Basic Services[1/] | 170.7 | 6 | 8.3 | 234.6 | 10.4 | 424.4 | 9.6 | 501.8 | 6 | 827.3 | 10.5 |
| Commerce[2/] | 430.2 | 15 | 8.3 | 591.1 | 8.0 | 939.1 | 8.1 | 1,661.3 | 20 | 2,457.1 | 8.1 |
| Other Services[3/] | 925.4 | 31 | 6.5 | 1,192.2 | 4.7 | 1,566.7 | 5.4 | 2,341.1 | 28 | 3,064.7 | 5.5 |
| Total GNP | 2,960.3 | 100 | 6.9 | 3,859.2 | 6.4 | 5,609.2 | 6.6 | 8,609.2 | 100 | 12,037.1 | 7.7 |
| Per Capita GNP (in Colones) | $2,368.00 | | | $2,431.00 | | $2,980.00 | | $4,411.00 | | $5,562.00 | |

[1/] Includes electricity, gas, water, communications, and transport activities.

[2/] Includes wholesaling, retailing, and banking activities.

[3/] Includes all public and private personal services and other sectors not well specified.

[4/] Projections for the five-year development plan.

Source: Adapted from, Oficina de Planificacion, Plan Nacional de Desarollo: Estrategia y Plan Global (San Jose: Oficina de Planificacion, 1974), pp. 51-52.

percent over the same period, real per capita income changed at an annual rate of over three percent. This is one of the best economic performance records in Latin America. In absolute terms national per capita GNP in 1973 was approximately $610 (U.S.).[1]

Such growth rates have both caused and resulted from a marked structural change in the sectoral composition of GNP. The agricultural sector accounted for approximately 40 percent of the GNP in 1950.[2] By 1963 its participation had evolved to 26 percent, and in 1973 it was an estimated 20 percent (Table 3.0). In contrast, the industrial, commercial and service sectors of the economy each expanded their share of GNP. In terms of absolute growth, the agricultural sector grew yearly during the period 1963-1973 at five percent, while industry, basic services and commerce expanded at over eight percent.

Labor force occupation has obviously changed rapidly along with the evolution of GNP sectoral composition. Just since 1963 agriculture has gone from employing one half of the national labor force to occupying approximately thirty-seven percent in 1973. On the other hand, commerce and personal services have increased their share (Table 3.2). Note also that during the period 1963-1973 the

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[1]Exchange rate 8.7 Colones = 1 U.S. dollar.

[2]Battelle Memorial Institute, Projections of Supply and Demand for Selected Agricultural Products in Central America Through 1980 (Jerusalem, Israel: Publication Services Division of the Israel Program for Scientific Translation, 1969), p. 15.

Table 1.2 Occupation of Labor Force by Sector for Selected Years

| Sector | 1963 | | 1973 | | Percentage of Change 1963-1973 (Annually) | 1978[4/] | | Percentage of Change 1973-1978 (Annually) |
|---|---|---|---|---|---|---|---|---|
| | Labor Force | Percentage of Total | Labor Force | Percentage of Total | | Labor Force | Percentage of Total | |
| Agriculture | 190,424 | 50 | 209,000 | 37 | 0.9 | 231,961 | 33 | 2.1 |
| Mines and Industry | 44,828 | 12 | 66,600 | 12 | 4.0 | 88,872 | 13 | 5.9 |
| Construction | 21,073 | 5 | 37,000 | 7 | 5.8 | 54,615 | 8 | 8.1 |
| Basic Services[1/] | 18,390 | 5 | 27,500 | 5 | 4.1 | 34,374 | 5 | 4.6 |
| Commerce[2/] | 37,932 | 10 | 76,000 | 13 | 7.2 | 103,525 | 15 | 6.4 |
| Other Services[3/] | 70,500 | 18 | 148,000 | 26 | 7.7 | 179,444 | 26 | 3.9 |
| Total | 383,147 | 100 | 564,100 | 100 | 3.9 | 692,791 | 100 | 4.2 |

[1/] Includes electricity, gas, water, communications, and transport activities.

[2/] Includes wholesaling, retailing, and banking activities.

[3/] Includes all public and private personal services and other sectors not well specified.

[4/] Projections for the five-year development plan.

Source: Adapted from, Oficina de Planificacion, Plan Nacional de Desarrollo: Estrategia y Plan Global (San Jose: Oficina de Planificacion, 1974), pp. 51-52.

absolute growth of employment in agriculture was less than one percent yearly. The national government considers this inadequate, in spite of strong growth for other sectors. It is also one of the reasons why a major agricultural sector development program was begun in 1970.

In spite of its declining GNP share, due to absolute growth and to more labor-intensive production techniques, the agricultural sector is still the relatively most important source of employment in the economy. It is likewise a critical source of investment capital to support growth in other sectors, since traditional agricultural exports generate a majority of the country's foreign exchange earnings. And this relationship has not changed as much the role of agriculture in the economy. In 1950 agricultural products accounted for 93 percent of all exports: in 1973 they represented approximately 75 percent.[1]

## 3.2 Population Growth

The country's population has also grown rapidly. During the period 1950 to 1963 its yearly growth fluctuated between 33.7 and 38.5 persons per 1,000 inhabitants.[2] In 1965 this began to slow down, reaching approximately 25

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[1] Agencia Para el Desarrollo Internacional (USAID), Programa de Desarrollo Agropecuario 1971-74 (San Jose: Agencia Para el Desarrollo Internacional, 1970), p. 11.
Direccion General de Estadistica y Censos, Comercio Exterior de Costa Rica--1973 (San Jose: Ministerio de Economia, Industria y Comercio, 1974), p. 448.

[2] Miguel Gomez B., Costa Rica: Situation Demografica y Perspectivas Alrededor de 1970 (San Jose, CESPO, 1971), p. 10.

persons per year per 1,000 inhabitants in 1973. The resulting geometric growth rate for the intercensal period 1963-73 was approximately 3.3 percent yearly. Most predictions for the next 10-year period use an average yearly rate between 2.2 and 2.8 percent, based on two important assumptions: (1) that yearly birth rates in urban areas of the country will continue to decline and stabilize around 26 persons per 1,000 inhabitants and (2) that rural birth rates will begin to decline in the late 70's, reaching between 30 to 35 persons per year per 1,000 inhabitants by 1985.

Projection of the total population of the country in 1983 (Table 3.3) uses a yearly growth rate of 2.2 percent. The estimate of the urban/rural breakdown assumes that the 1963-73 trend will be repeated during the period 1973-83. Thus, by 1983 the country will have approximately 2,300,000 inhabitants, with an estimated 52 percent living in urban areas (as narrowly defined by the Costa Rican Bureau). Even at this relatively lower rate (compared to past years) total population will expand by nearly 25 percent in 10 years and over 50 percent in twenty years. Such increases impact strongly on the demand for food supplies and related marketing services.

The growth of urban areas is also critical for the national economy and food system. Up to 1963 urban growth was only moderately above the overall rate of population increase (for period 1950-63 urban areas grew at a yearly

Table 3.3 Population of Costa Rica in Past Census Years and Projections to 1983

| Area of Country | Population of Costa Rica (thousands) | | | |
|---|---|---|---|---|
| | 1950 | 1963 | 1973 | 1983[2] |
| Urban[1] | 288 | 460 | 795 | 1,104 |
| (Percentage) | (33.5) | (34) | (41) | (48) |
| Rural | 571 | 876 | 1,086 | 1,196 |
| (Percentage) | (66.5) | (66) | (59) | (52) |
| Total | 859 | 1,336 | 1,845 | 2,300 |
| (Percentage) | (100) | (100) | (100) | (100) |

[1]The Costa Rican Census Bureau's definition of "urban" is complicated and probably underestimates the degree of urbanization. As a general rule it includes all county seats, or cabeceras de cantones, no matter what their population. See Miguel Gomez, Costa Rica: Situacion Demografica y Perspectivas Alrededor de 1970 (Costa Rica: CESPO, 1971), pp. 2-3.

[2]Estimations by PIMA.

Source: 1950, 1963 and 1973 Costa Rican Population Census.

geometric rate of approximately 3.6 and rural areas at 3.3). During the intercensal period 1963-73, however, urban growth accelerated to approximately 5.5 percent yearly while the rural dropped to 2 percent. National Planning Office and the International Labor Organization studies of employment noted the need to plan for and to reduce this increase, as well as to plan for expected large additions to the labor force during the late 1970's resulting from past high rates of population growth.[1]

## 3.3 Need to Improve Food Production-Distribution System[2]

The combined effect of the aformentioned forces has two major implications. First, the agricultural sector is closely integrated into the rest of the economy and public policy must be structured to deal with such interrelationships. From a dynamic planning perspective it can be argued that it is more useful to think in terms of a super-sector or food system that accounted for 40 to 50 percent

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[1]Oficina Internacional del Trabajo, Situacion y Perspectivas del Empleo en Costa Rica (Ginebra: Oficina Internacional del Trabajo, 1972), p. 87.

Oficina de Planificacion, Plan Nacional de Desarrollo: Estrategia y Plan Global (San Jose: Oficina de Planificacion, (1974), p. 49.

[2]This and the following section draws heavily on work by a study team (including the author) to develop a series of project proposals for consideration as part of a second stage of the Costa Rican Agricultural Sector Development Program. See: PIMA, Programas Para Mejorar el Sistema de Mercadeo Agropecuario en Costa Rica, Informe Preliminar (San Jose, Costa Rica: IFAM, 1974).

of GNP.[1] The basic purpose of this system is to respond to both internal and external market demands for food and related services. Failure in one component becomes a bottleneck for increased output from all other components. Increased output and productivity from each component requires additional administrative, technological and resource specialization. Additional output and productivity from the overall system requires a much larger volume of exchange of products, services and information among increasingly specialized components. Therefore more effective public policy to foment lower cost and less risky agricultural and food marketing activities becomes especially critical to achieving performance objectives of this system.

Unfortunately, analysis shows that public policy towards the emerging food system in Costa Rica lacks effectiveness.[2] Agencies and institutions historically have

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[1]There are no specific data available to indicate this percentage. Yet in 1973 agriculture accounts for 20% of GNP and food processing accounts for an estimated third of industry's share. These then account for roughly 26% of GNP. Assume further that all other sectors (which are various forms of services) contribute 26% of their GNP share to supporting agricultural production and industrial food processing. A highly interrelated food production-processing-distribution super-sector would then account for an estimated 45% of GNP. And since retail prices represent value added by all intermediate products and services, another indicator of the role of a food system in GNP is the percent of disposable income that consumers spend on food. The current average estimate of this in Costa Rica ranges from about 40% for urban consumers to over 50% for rural ones.

[2]Ibid., p. 3-1 to 3-20.

focused on separate agricultural commodities with major emphasis on individual export crops. This orientation has served the country well in increasing output of traditional exports. Production and productivity increases of food crops for the internal market have lagged, however, as has the ability of the agricultural sector to absorb additions to the labor force. And new problem areas such as risky and ineffective coordination of food production with demands of urban food distribution have not been attended by the relatively farm oriented public and semi-public support agencies.[1]

A second closely related implication is the need to orient public policy towards planning for a strong and changing internal demand for food marketing services. With higher incomes and more people living in urban areas comes demand for more convenience and other marketing services, and for higher income elastic foods such as meat, fruits, and vegetables. The combined effect of population, urban and income growth over the next 20 years similar to that over the past 20 could easily triple or quadruple the total value of the present food bill.[2]

The cost at which these additional food and marketing services are made available to local consumers is critical to present welfare and future development potentials of

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[1]Ibid., p. 3-5.

[2]Kelly Harrison et al., Fomenting Improvements in Food Marketing in Costa Rica, p. 36.

the economy. On the one hand, inflation began to accelerate in the early 1970's after a decade of nearly constant prices. There were international forces of high fuel and commodity prices affecting this, yet a SIECA study of inflation in Central American countries also identified the problem of relative stagnation of agricultural production for internal demand.[1] To avoid food price inflation in Costa Rica, with a 2.5 percent yearly population and a 2.5 percent real income growth (given a .6 income elasticity of demand for food), requires overall agricultural production increases for local consumption of approximately 4 percent (assuming no increases in food imports). As shown in Table 3.4 in constant 1966 prices the value of production of export crops increased at a yearly rate of 7.4 percent while that of local consumption products grew at only 3.4 percent.

At the same time, an estimated 40 to 50 percent of the final cost of food is attributable to marketing services.[2] Thus, programs to improve efficiency of marketing agents are also critical to keeping inflation rates low and to achieving dynamic interaction between sectors of the economy. Since low and low-middle income urban consumers

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[1]SIECA-Secretaria Permanente del Tratado General de Integracion Economica Centro Americana, La Evolucion Economica de Centro America en 1971-72 y Sus Implicaciones Sobre el Alza en los Precios Internos. (Guatemala, SIECA, 1973), p. 18.

[2]Harrison et al., Fomenting Improvements in Food Marketing in Costa Rica, p. 20.

Table 3.4 Value of Export and Internal Market Agricultural Production in Constant 1966 Prices

| Agricultural Products | 1966 (Thousands of 1966 Colones) | 1974 (Thousands of 1966 Colones) | Yearly Geometric Change 66-74 (Percentage) |
|---|---|---|---|
| Export Products[1] | $806,733.7 | $1,424,980.7 | 7.4% |
| Local Consumption[2] Products | $806,730.8 | $ 653,102.6 | 3.4% |

[1]Export products include: coffee, banana, sugar, cacao and beef.

[2]Local products include all other crop and livestock products.

Source: Banco Central de Costa Rica, Cuadros del Valor de Produccion Agropecuario 1957-1974 (San Jose: Banco Central De Costa Rica)

spend such a large portion (estimated by PIMA at 50 to 60 percent) of their income on food, keeping product and related marketing services prices at economical levels has an important impact on the welfare of this large portion of the population. It also has a dynamic effect in that lower retail prices (or at least reduced rates of increases in prices) represent real income increases which are transferred into additional purchases of both food and non-food items. These expenditures can then set in motion a process of additional economic expansion as new demand is reflected back to farm, industrial and other producers.

## 3.4 Agricultural Sector/Food System Development Programs

In 1970 the Costa Rica government, with assistance from the United States Agency for International Development (USAID) undertook a 37 million dollar Agricultural Sector Development Program. Its primary goal was to transform small and medium size farms of the country from using traditional to more modern (and productive) production techniques. This program involved a series of public agencies providing new and improved activities in agricultural services (The Ministry of Agriculture), production credit (The National Banking System), education (The University of Costa Rica), cooperatives, land reform, and marketing. Expected specific consequences were the following:[1]

a) Improved income and levels of living for thousands of farm families (with the consequential demand increases for consumer goods);

b) Creation of a new and dynamic source of increased national production;

c) Increased employment opportunities and incomes in rural areas;

d) Increased contribution by the agricultural sector to solving balance of payment problems.

In 1973 the PIMA agricultural marketing group formed to examine problems of municipal markets, was asked to assist the National Agricultural Coordinating Council--CAN--in studying marketing problems and in formulating financeable projects which could be included by USAID and

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[1]USAID, Programa de Desarrollo Agropecuario 1971-74, p. 19.

other international lending agencies in a follow-up or second-stage sector loan. Only a small initial marketing activity was included in the original loan and since 1970 new information indicated a possible need for additional action.

Three problem areas were identified and projects were proposed to deal with each, and to relate to other agricultural production reforms already underway from the initial sector development program. A San Jose Metropolitan Region food distribution/processing center and a package of related auxiliary services was recommended to deal with problems resulting from the relatively unorganized and poorly coordinated national fruit and vegetable production-assembly-wholesaling subsystem. This was conceived as a priority entry-point into the process of providing more stable and less risky markets for the large number of relatively small fruit and vegetable farmers in the country. It was also requisite to improving the quantity and quality of perishable products being made available to urban consumers. And while the project called for new physical infrastructure, it placed relatively more emphasis on developing effective market information, product handling and other management and supply coordinating techniques for farmers, wholesalers and retailers.[1]

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[1]For a detailed discussion of problems and proposed solutions in this area see chapter 4 of the PIMA report: Programas Para Mejorar el Sistema de Mercadeo Agropecuario en Costa Rica.

A second problem and project area involved more general urban food distribution processes. It proposed a special credit and technical assistance program to improve instore and supply coordinating processes of selected wholesale and retail food merchants. The retailing component serving the large urban area around San Jose has already began to decentalize: central public markets are only a portion of the system and are expected to continue declining. They have been replaced by a large number of small personal service retailers located in local neighborhoods, and since some 10 years ago, a rapidly growing number of large-scale, self-service supermarkets. The latter represent potential progressive elements in the urban distribution system. Already one of the supermarket chains is contracting with, and providing improved production technologies to, farmers. There is also an effort by a number of small-scale neighborhood stores to form and operate retailer owned cooperative wholesale operations. Yet for the most part the large urban area distribution system (particularly that part serving low income consumers) was judged not to be adjusting as effectively as possible to changing demands. Nor was it advancing sufficiently in the critical role of effectively linking urban consumer needs to rural food production potentials (both small and large farmers).[1]

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[1]See chapter 5 of the PIMA Programas report for a detailed discussion of this problem area.

The third problem and project area deals with improving the ability of various Costa Rican public agencies to provide analysis and policy leadership, and continually changing services to a dynamic food marketing system. The historical objective and thrust of public sector actions (to primarily increase production and productivity of agricultural export crops) was judged inadequate to achieve present multiple goals of the food and agriculture production-distribution system. The 1970 Agricultural Sector Program sought to improve the capacity of various public institutions to transform production methods of small- and medium-size farmers. This part of the marketing study proposed formation of two new agencies and fortification of services of existing ones in order to improve the public sector's ability to promote change and development of marketing processes critically linked to agricultural production by small farmers. These basic institution building proposals included the following:[1]

a) Formation of a task force of marketing economists and technicians with the objective of continuously studying, planning and programming the development of desirable changes in marketing processes.

b) Formation of an urban food distribution public agency to promote needed changes in this relatively new area of agricultural marketing.

c) Formation of a program of farm marketing extension services within the Ministry of Agriculture.

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[1]See chapter 6 of the PIMA Programas report for a detailed discussion of this problem area.

This would also include an improved market intelligence and news service program.

## 3.5 County Government Reform to Promote Rural Development

Another important force for changes in the national food system is a county government reform program aimed at strengthening local participation in decisions determining the pace and quality of rural development. As part of the Agricultural Sector Program a series of studies were done on local government and community development in rural areas of the country.[1] Investment in rural infrastructure was judged inadequate, as was local organization, initiative and problem solving capacity. Improving these was seen as a strategic component of a more general effort to slow off-farm and rural county out-migration to the San Jose area.

Costa Rica has 7 provinces or states. Each is divided into Cantons which are in turn subdivided into Distrietos. There are a total of 80 Cantons and 406 Distrietos in the country. The Spanish term Canton is commonly translated as "municipality," although for the present study "county" is used as it is a more accurate equivalent. "Municipality" conotes only a town or city government unit,

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[1] See chapter VII of the USAID publication, Programas de Desarrollo Agropecuario for a detailed discussion of these studies. See also:

Christopher E. Baker, Ronald F. Stone and Samuel Stone, Municipal Government in Costa Rica: Its Characteristics and Functions (San Jose: Associated Colleges of the Midwest, Central American Field Program, 1971).

while "county" describes a geographical region including both urban and rural areas, and this is the more correct meaning of a Canton. The central administrative and political unit of a Canton is called a corporacion municipal and commonly translated as municipal corporation. Again this will not be used because it focuses attention only on the urban portion of a county. The unit will simply be referred to as the "county government" or "county council" since it is made up of elected councilmen who in turn appoint a county manager. The county government is physically located in the Cabecera de Canton, which herein is translated at "county seat."

Districtos are likewise translated at "townships" since they are geographical subdivisions of counties. The concept of a "rural county" is not defined in Costa Rica since all cabeceras de canton (except four with populations of less than 500 and situated in isolated rural areas) are classified as "urban." Hence, counties usually contain both urban and rural areas. The present study defines "rural counties" as those having more than 50 percent of the total county labor force employed directly in agricultural activities, as identified in the occupational data from the 1973 Population Census. There are 50 counties in this category.

Historically county government played a key role in developing Costa Rica's democratic tradition. Most local infrastructure and services were also provided by them

because national communication was difficult and the central government was relatively weak. This beginning gave way to a long period (about 100 years) of centralization of power, reducing county governments to weak administrative bodies. The Baker et al. study concluded:

> We cannot help but agree with those who seek substantial reforms at the municipal level of government. If municipal (county) government is to be viewed as a significant structure of government in Costa Rica, such reforms are imperative. At the present time the rural municipal councils of Costa Rica fulfill little more than an administrative function and are not at all equipped to participate actively in the process of resolving the needs of a "developing" society.[1]

Starting in 1949, the centralization trend began to reverse, county governments were at least given token autonomy and a series of autonomous institutions were created to assume responsibility for and/or to assist local governments in providing water, electricity, urban planning and other needed local services. These agencies helped to increase investment in desired infrastructure, although county government income and investment still remained inadequate. The lack of long-term credit at moderate rates of interest was diagnosed as a critical factor in limiting investment in rural county and regional projects.

In 1970 a new tax legislation and a municipal (county) code was passed which began a planned five-step program of additional reforms. These steps include:

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[1]Christopher E. Baker, Op. cit., p. 122.

1) County financing was improved by replacing partial participation in five taxes with the full yield of an ad-valorem property tax.

2) The new municipal code established norms of administrative conduct, improved financing procedures, returned appointment of the county manager to the county councils, called for the study of a county level civil service system, and authorized the creation of an autonomous institute to provide counties with long-term financing and technical assistance.

3) The actual creation of IFAM--Instituto de Fomento y Asesoria Municipal.

4) County elections are to be changed to off-year schedules, thus hoping to focus councilmen's electoral campaigns on local issues.

5) A project is underway to consider revision of the present political-administrative boundaries of the counties in order to more closely align them with actual needs.

The Agricultural Sector Program provided IFAM in its startup phase with assistance in capitalization, technical assistance, and equipment. The objective was to enable a more rapid response by the new agency to the needs of county government, particularly those in rural areas. The credit and technical assistance functions of IFAM were conceptualized as complementary tools;

> IFAM loan agreements will obligate the borrowing municipality to begin programs of improved tax collection and municipal administration, and to collaborate with IFAM in its training and research programs. Loans will also include costs of feasibility studies, plans, and supervision, when appropriate. Particular stress will be placed by IFAM on the need to establish the economic, financial, and administrative feasibility of specific projects.[1]

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[1] AID--Programa de Desarrollo Agropecuario 1971-74, p. 200.

The general lending policy of IFAM was to emphasize economically viable projects which demonstrate reasonable return on investment. Projects with fewer directly recoverable costs but important social benefits were to also be considered when counties showed an ability to absorb debt payment with regular tax and other income.

## 3.6 Conclusions

This concludes a review of key forces of change in the Costa Rican economy. Income and population growth are pressuring the food production and distribution system serving consumers (particularly low-income ones) in large urban areas for new and improved services. A national agricultural sector program is underway to expand production of local food crops and to improve overall living conditions in rural areas through more effective local government action. A series of marketing and distribution improvement programs have also been proposed to help remove a number of retail, wholesale, and farm-level marketing bottlenecks.

Given the sectoral composition of the Costa Rican economy, it is increasingly necessary to treat agricultural production-distribution processes as components of a highly interdependent and dynamic urban and national food system. The following chapter will show why food distribution and consumption processes in rural areas of the country ought to likewise be considered as critical elements of this system.

# CHAPTER IV

## COMPARATIVE DESCRIPTIVE DIAGNOSTIC OF NARANJO AND PURISCAL COUNTY FOOD DISTRIBUTION SUBSYSTEMS

The purpose of this chapter is to describe and analyze vertical organization and coordination processes within the Naranjo and Puriscal county food distribution subsystems as conceptualized in Chapter II. The analysis will particularly focus upon public markets in rural county seats as coordinating institutions for county-level food distribution processes. It will also closely examine consumer, retailer, and wholesaler behavior in order to undertake in later chapters two important objectives of the overall research:

1) To evaluate the impact of proposed new public food markets.

2) To formulate alternative institutional and other reforms to more effectively solve existing problems and thereby improve overall performance of county and national food systems.

Primary or "core" subsystem participants to be examined include the following:

A. Urban and rural consumers, including farmers who produce varying amounts of their own food supplies.

B. Urban and rural food retailers.

C. Wholesale suppliers located within each county and connections with wholesale sources outside each.

## 4.1 Counties Included in the Analysis

IFAM officially received ten municipal or public food market loan requests in June of 1973 (Table 4.0). PIMA was asked to help evaluate these, although at the time it was charged with working primarily on a national-level analysis of food marketing and the feasibility of a national food processing and distribution center in the San Jose metropolitan region. Costa Rican private engineering and agricultural consulting firms had completed feasibility studies of the Grecia, San Carlos, and Naranjo projects.[1] Substantial financial and political commitments were thus already made, especially for Grecia and San Carlos.

Hence, in spite of some doubt as to the viability of the earlier studies, PIMA began to focus on the newer requests, with the exception of a reevaluation of the Naranjo project. It was undertaken because the previous feasibility study had not been large and there was a general feeling that another analysis could sufficiently alter the proposed project (reducing its costs) to justify the additional

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[1](a) Agroindustrias Toro, Estudio de Factibilidad del Mercado Municipal para la Zona de San Carlos (San Jose, Costa Rica: Agroindustrias Toro, 1970) [hereinafter referred to as the San Carlos Feasibility Study].

(b) AICA-SAMAG, Estudio de Factibilidad del Mercado Municipal de Grecia (San Jose, Costa Rica: AICA-SAMAG, 1969) [hereinafter referred to as the Grecia Feasibility Study].

(c) ICESA--Ingenieros-Arquitectos Consultores, Estudio de Factibilidad para Remodelacion del Mercado Municipal y Instalacion de una Terminal de Buses en Naranjo (San Jose, Costa Rica: ICESA, 1972) [hereinafter referred to as the Naranjo Feasibility Study].

Table 4.0 Public Food Market Loans Requested and Approved by IFAM--June, 1973

| County (Population, 1973) | Type of Project | Total Project Cost (Colones) | Amount of IFAM Loan Approved* or Requested |
|---|---|---|---|
| Grecia (31,806) | New public market | $3,853,969 | $2,300,000* |
| San Carlos (54,952) | New public market | $2,620,700 | $1,880,000* |
| Naranjo (19,721) | Remodeling of market and bus station | $1,697,905 | $ 636,600*<br>$ 135,547 |
| Aguirre (14,473) | New public market | unknown | $ 425,000 |
| Coto Brus (19,971) | New public market | unknown | unknown |
| Limon (40,830) | Feasibility study to remodel public market | --- | $ 100,000 |
| Nicoya (37,185) | New public market | unknown | $ 500,000 |
| Perez Zeledon (San Isidro) (67,089) | Feasibility study of new public market | unknown | $ 100,000 |
| Puriscal (24,150) | Remodeling of public market | unknown | $ 225,000 |
| Golfito (42,510) | Feasibility study on new market and bus station | unknown | $ 200,000 |

Sources: IFAM Internal Memorandum.

expense of a second study. A regional planning study for the county of Perez Zeledon was also underway by another division of IFAM, so it was decided that PIMA would cooperate with them in analyzing that specific market loan request. Finally, the county of Puriscal was pursuing IFAM for quick action on a request, as their county engineer had already prepared preliminary drawings of the proposed market remodeling.

PIMA thus undertook the primary responsibility of analyzing the Naranjo and Puriscal requests and of acting as consultants to the Perez Zeledon study. Primary data surveys were designed and executed by PIMA for Naranjo and Puriscal. For this reason, this chapter will focus mostly on these two counties although, when feasible, occasional reference is made to findings from the other cases.

Map 4.1 shows the location of all the county feasibility studies done by PIMA, IFAM Regional Study Groups, and private engineering firms.[2] The entire country is well

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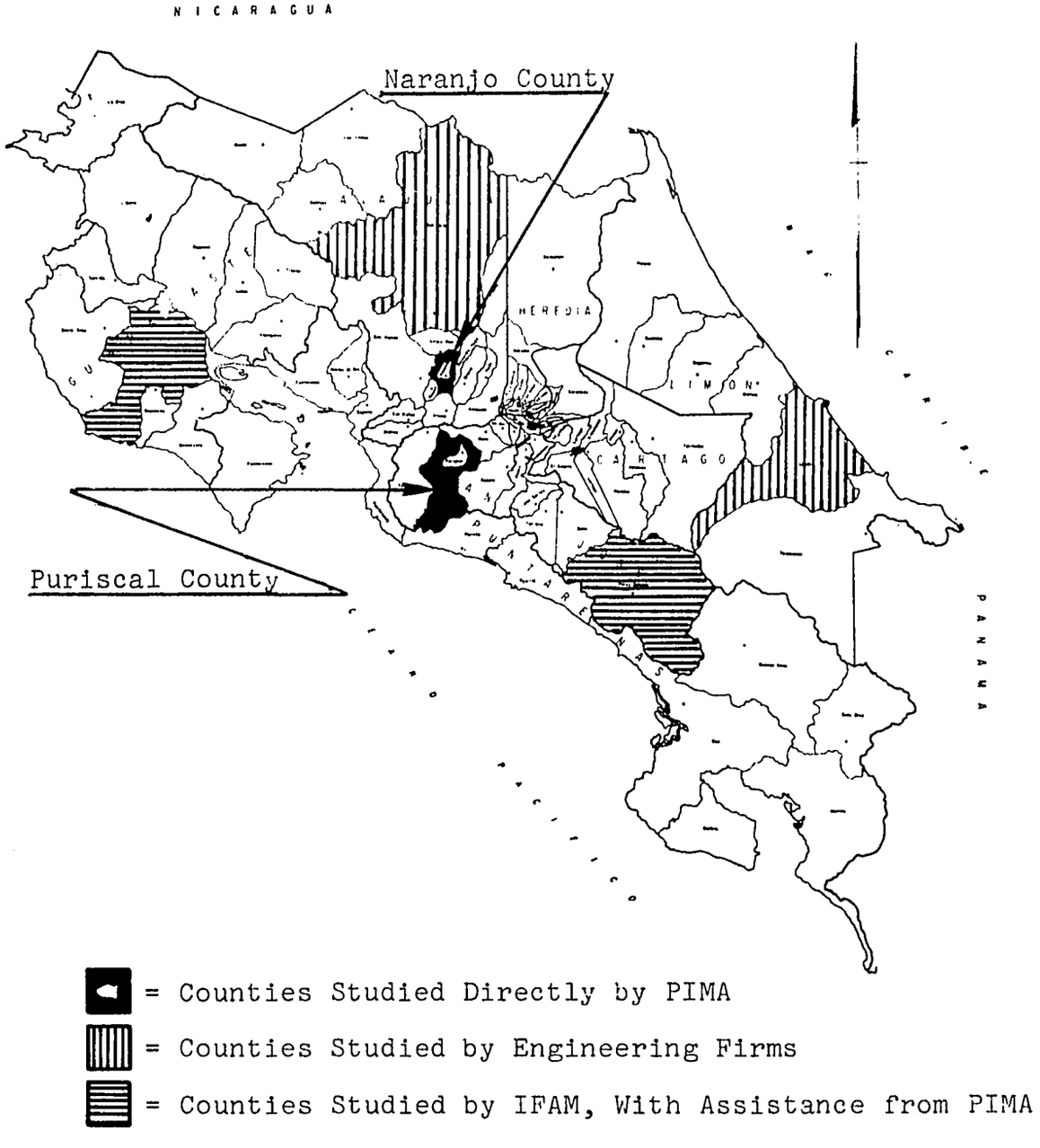
[1]PIMA (Programa Integral de Mercadeo Agropecuario), Analysis Sobre el Mercado Municipal y la Zona Comercial en San Isidro de el General (San Jose, Costa Rica: IFAM, 1973) [hereinafter referred to as the San Isidro Feasibility Study].

[2]The Nicoya study was done by a Regional Study Group and PIMA in 1975 after Phase One work for the present study was completed. The Limon Study was likewise done by a privade firm in late 1974 and early 1975.

PIMA. Estudio del Mercado en el Canton de Nicoya. (San Jose, Costa Rica: IFAM, 1975) [hereinafter referred to as the Nicoya Feasibility Study].

ICESA (Ingenieros-Arquitectos Consultores), Estudio de Factibilidad: Remodelacion Mercado en el Municipio de Limon (San Jose, Costa Rica: ICESA, 1973) [hereinafter referred to as the Limon Feasibility Study].

Map 4.1 Counties in Costa Rica in Which Public Market Feasibility Studies Were Carried Out



represented in the geographical spread of these. Yet the engineering firm studies were significantly different (compared to the PIMA ones) in their scope and procedure. (This will be further discussed in Chapter V.) So in spite of the rather wide coverage of the country, there is little detailed comparative data available beyond that collected by PIMA. This is particularly true for the rural areas of each county, as the engineering firm studies and the emphasis of the IFAM regional ones were upon a more limited view of food marketing within county seats only.

## 4.2 Consumers in Naranjo and Puriscal Counties

### 4.21 Settlement Patterns

Knowing the number and exact geographic location of consumers is important in the study of the rural food distribution subsystem, since a more or less concentrated or nucleated pattern of settlement directly influences transportation and other volume and assortment-creating costs for retailers, wholesalers, and consumers. It also indicates the potential density of demand for retailers in various rural locations. The 1973 Costa Rican Population Census shows (Table 4.1) the total population of the townships of each county broken down by urban and rural locations. For both, as well as most other counties of Costa Rica, the county seats are classified as "urban" and the rest of the county as "rural." Naranjo has approximately 30 percent and Puriscal 11 percent of their population living in urban areas.

Table 4.1 Urban and Rural Population of the Townships of Naranjo and Puriscal Counties

| County and Township | Urban (County Seat Population) | Rural Population | Total |
|---|---|---|---|
| Naranjo | | | |
| (1) Naranjo | 5,944 | 3,961 | 9,905 |
| (2) San Miguel | --- | 1,357 | 1,359 |
| (3) San Jose | --- | 1,763 | 1,763 |
| (4) Cirri Sur | --- | 1,603 | 1,603 |
| (5) San Jeronimo | --- | 1,039 | 1,039 |
| (6) San Juan | --- | 2,559 | 2,559 |
| (7) Rosario | --- | 1,495 | 1,495 |
| TOTAL | 5,944 | 13,777 | 19,721 |
| PERCENT OF TOTAL | 30 | 70 | 100 |
| Puriscal | | | |
| (1) Santiago | 2,588 | 4,590 | 7,178 |
| (2) Mercedes Sur | --- | 8,643 | 8,643 |
| (3) Barbacocas | --- | 2,326 | 2,326 |
| (4) Grifo Alto | --- | 1,249 | 1,249 |
| (5) San Rafael | --- | 2,075 | 2,075 |
| (6) Candelarita | --- | 1,198 | 1,198 |
| (7) Desamparaditos | --- | 538 | 538 |
| (8) San Antonio | --- | 943 | 943 |
| TOTAL | 2,588 | 21,562 | 24,150 |
| PERCENT OF TOTAL | 11 | 89 | 100 |

Source: 1973 Costa Rican Population Census.

These location definitions are misleading, however. In Costa Rica, county seat communities with populations as small as 212 (county of Turrabares), located in relatively distant agricultural areas are classified as "urban," as are cities of 5,000, 10,000 and larger. And population nucleations in townships of counties may have populations of 250, 500, or larger and still be classified as "rural." Therefore, both the urban and rural categories contain a wide range of population density areas. Furthermore, the Census Bureau does not collect nor maintain any information on the number, size, or other characteristics of the various-sized rural nucleations in each county. They only recognize one community in each county--the county seat. Because of this, the rural consumer and retailer surveys were carried out ignoring specific rural settlement location. The survey design, however, was such that higher rates of sampling resulted in higher population density areas.

During and after the field work, it became obvious that more specific rural settlement information was important to questions of alternative rural food distribution services. So as part of the Phase Two research activities, it was decided to search for a more complete and detailed view of the rural settlement pattern. After reviewing available studies, an estimation procedure was developed utilizing (1) 1973 Costa Rican township census maps and information graphically represented on them, (2) data from business

license records of Naranjo and Puriscal county government offices, and (3) information collected in the rural consumer surveys.

This procedure is discussed in Appendix C. "Large villages" are defined as population nucleations having a church, rural school and two or more small food stores, and at least 30, 60, and 90 houses within 300-, 600-, and 900-meter radius circles (respectively) drawn on Costa Rican Township Census Maps. "Small villages" are defined as having a church, rural school, one or more food stores, and less than 30, 60, and 90 houses within the 300-, 600-, and 900-meter radius circles. Other small rural concentration points are also identified when having a small number of houses (up to 15 or 20) clustered around a rural school and one food store.

Table 4.2 shows the estimated number of rural communities identified. Naranjo County has some 15 large and small villages and Puriscal has 16. Alternative population estimates for each of these were derived since there are no official definitions of the legal physical boundaries of these communities (see Table C.2). Size B estimates (covering about a one square kilometer area) for small and large villages appear reasonable and show a significant change in the degree of dispersion implied by classifying all of the population living outside county seats as "rural." The Census Bureau says Naranjo County has 70 percent of its population classified as rural: the rural area of the county

Table 4.2 Estimated Number of Urban and Rural Communities in Naranjo and Puriscal Counties

| County and Township | Number of Communities | | | |
|---|---|---|---|---|
| | Urban | Rural | | |
| | (County Seat) | Large Villages | Small Villages | Other Smaller Concentrations |
| Naranjo | | | | |
| (1) Naranjo | 1 | 3 | 2 | |
| (2) San Miguel | | 1 | | 1 |
| (3) San Jose | | 1 | 1 | 1 |
| (4) Cirri Sur | | | 3 | |
| (5) San Jeronimo | | 1 | | 1 |
| (6) San Juan | | 1 | 1 | |
| (7) Rosario | | | 1 | 1 |
| TOTAL | 1 | 7 | 8 | 4 |
| Puriscal | | | | |
| (1) Santiago | 1 | | 2 | 1 |
| (2) Mercedes Sur | | 1 | 4 | 11 |
| (3) Barbacocas | | 1 | 1 | 2 |
| (4) Grifo Alto | | | 2 | 2 |
| (5) San Rafael | | | 2 | |
| (6) Candelarito | | 1 | | 1 |
| (7) Desamparaditos | | | 1 | |
| (8) San Antonio | | 1 | | 1 |
| TOTAL | 1 | 4 | 12 | 18 |

Source: Derived from Costa Rican Census Bureau Maps.

covers some 115 square kilometers. The 15 size B rural communities include only 14 percent (16.5 $km^2$) of the rural area but account for over 30 percent of the rural population. The average population density in these is approximately 368 people per square kilometer, while in the remaining area of the county the density is some 78 persons per square kilometer.

The change in the degree of dispersion is even greater for Puriscal County. The 16 size B rural communities cover only 3 percent of the rural land area and include 20 percent of the rural population. The average density in the communities is some 274 persons per square kilometer, while in other rural areas it is only 31.

Thus rural consumers are not a homogeneously dispersed group. Substantial settlement concentrations are present and it is hypothesized that this has significant implications for existing and alternative ways of organizing and coordinating the rural food distribution subsystem.

### 4.22 Agriculture and Other Occupations of Consumers

This study classifies Naranjo and Puriscal as rural counties, since over one-half of the economically active population in each is employed directly in agricultural production activities. In the 1973 Costa Rican Population Census (Table 4.3), 58 percent and 71 percent of the labor force in Naranjo and Puriscal, respectively, work in agriculture. In order to begin to study the demand for purchased food and related marketing services, it is necessary

Table 4.3 Occupational Distribution of Economically Active Population in Naranjo and Puriscal Counties

| Occupation | Percentage of Economically Active Population | |
|---|---|---|
| | Naranjo County | Puriscal County |
| Agriculture | 58 | 71 |
| (Self-Employed Farming--Prime Source of Income)[1] | (15) | (35) |
| (Agriculture Laborer--Prime Source of Income)[1] | (43) | (36) |
| | (58) | (71) |
| Industry | 5 | 3 |
| Construction | 5 | 3 |
| Public Utilities | 0.1 | 0.1 |
| Commerce | 8 | 6 |
| Transportation | 3 | 2 |
| Services | 14 | 12 |
| Other | 7 | 3 |
| TOTAL | 100 | 100 |
| Total Economically Active Population | 5,372 | 6,583 |

[1]This estimated breakdown of the population employed in agriculture is done with information from the Consumer Survey and not the 1973 Population Census.

Source: 1973 Costa Rican Population Census.

to know how many of these agriculturally-related consumers grow all or some degree of their own food supply. Unfortunately, the Census definition of "agricultural employment" does not distinguish between farm owners and/or operators and farm laborers. Nor is there any indication of where heads of households in each county earn their primary source of income.

According to land ownership, the 1973 Agricultural Census identified 1,275 farms in Naranjo and 2,112 in Puriscal Counties (Table 4.4). But there is no breakdown for each county of the number of farms by size grouping, so it is impossible to know how many farms are so small as to preclude the possibility of a family earning an income from them.

The PIMA rural-area consumer surveys collected information on family income and occupation, and this indicates an estimated 15 percent and 35 percent of heads of households employed in agriculture in Naranjo and Puriscal Counties earning their primary source of income from the operation of a farm. Given the total number of rural households, there are, then, an estimated 800 primary farm operators in Naranjo and 2,150 in Puriscal. Compared to Census farm numbers, there are some 475 (37 percent) of the farms in Naranjo County that do not provide their owners and/or operators with a primary source of income. Virtually all of the farms in Puriscal do provide a primary source of income.

Table 4.4 Land Use and Number of Farms in Naranjo and Puriscal Counties: 1963 and 1973

| Land Use | Naranjo County | | Puriscal County | |
|---|---|---|---|---|
| | Hectares 1963 | Hectares 1973 | Hectares 1963 | Hectares 1973 |
| Annual Crop Cultivation | 919 | 840 | 11,351 | 6,057 |
| Permanent Crops | 5,099 | 5,423 | 2,394 | 2,091 |
| Permanent Pasture | 6,755 | 6,218 | 20,589 | 25,100 |
| Forests | 1,664 | 1,849 | 12,466 | 6,980 |
| Other Lands | 107 | 236 | 345 | 292 |
| Total | 14,544 | 14,566 | 47,144 | 40,520 |
| Number of Farms | 959 | 1,275 | 2,358 | 2,112 |

Source: 1963 and 1973 Agricultural Census--Costa Rica

The type of agriculture in each county explains the apparent inconsistency here. Naranjo produces primarily coffee (Table 4.5); and, while there are no statistics to indicate, there are a number of quite large coffee farms generally employing many rural laborers. There are also many very small coffee farms whose operation probably only supplements the laborer income of the head of the household. In contrast, Puriscal has a somewhat diversified agriculture (Table 4.5). Coffee is still the most important crop, although there is less enterprise specialization on the average farm. Puriscal County also covers over four times as much area as Naranjo and has an average farm size of about double. So it is possible for most farm owners to gain their primary incomes from the farming operation.

Lacking better estimates, it is assumed that these provide a reasonable view of the potential number of farm families that could grow some or all of their own food. In general the data show that the percentage of people employed directly in agriculture may not be a good indicator of the potential demand for purchased food, since over half of the group are primarily laborers and may not have access to sufficient land to provide all or most of their own food. Nor can it be assumed that farm owner/operators raise their own food supply. Most farms in both counties, whether highly specialized or relatively more diversified, are producing for a commercial market.

Table 4.5 Estimated Quantity and Value of Agricultural Production on Farms in Naranjo and Puriscal Counties

| Crop or Livestock Enterprise | Naranjo County | | | Puriscal County | | |
|---|---|---|---|---|---|---|
| | Number of Farms (Total = 1,275) | Quantity of Production (Kilograms) 1973 | Estimated Value[1] of Production (Colones) | Number of Farms (Total = 2,112) | Quantity of Production (Kilograms) 1973 | Estimated Value[1] of Production (Colones) |
| Coffee | 1,078 | 25,925,177 | $158,143,579 | 1,131 | 5,320,445 | $32,454,714 |
| Sugar Cane | 122 | 17,867,000 | 1,003,589 | 346 | 11,467,000 | 644,101 |
| Rice (both yearly plantings) | --- | --- | --- | 543 | 874,922 | 1,749,844 |
| Corn (both yearly plantings) | 329 | 310,381 | 282,446 | 1,614 | 2,592,252 | 2,358,949 |
| Beans (both yearly plantings) | 187 | 58,781 | 114,623 | 1,075 | 447,677 | 872,970 |
| Tobacco[2] (all types) | (N. R.)[3] | 75,922 | 452,922 | (N. R.)[3] | 681,321 | 3,628,119 |
| Potatoes | 14 | 44,160 | --- | 2 | 644 | --- |
| Other Vegetables | N. R. | N. R. (Inventory) | N. R. | N. R. | N. R. (Inventory) | N. R. |
| Cattle--All Kinds | 457 | 5,966 head | N. R. | 1,369 | 25,998 head | N. R. |
| Cattle--Females | N. R. | (4,370) | N. R. | N. R. | (19,526) | N. R. |
| Cattle--Males | N. R. | (1,366) | N. R. | N. R. | (5,974) | N. R. |
| Cattle--Oxen | N. R. | (230) | N. R. | N. R. | (498) | N. R. |
| Hogs--All Kinds | 234 | 1,376 | N. R. | 1,019 | 3,675 head | N. R. |
| Hogs--Females & Males <6 months | N. R. | (670) | N. R. | N. R. | (2,043) | N. R. |
| Hogs--Males >6 months | N. R. | (310) | N. R. | N. R. | (661) | N. R. |
| Hogs--Females >6 months | N. R. | (396) | N. R. | N. R. | (971) | N. R. |
| Chickens | 967 | 34,778 | N. R. | 1,863 | 52,907 | N. R. |

[1] Prices are obtained from Central Bank of Costa Rica's estimates of farm gate value of national agricultural production.

[2] For 1972-73 crop year: Source: Direccion General de Estadistica y Censos, Annuario Estadistico Costa Rica 1973 (San Jose: Ministero de Economia, Industria y Comercio, 1974), p. 163.

[3] Not reported in 1973 Agricultural Census.

Source: 1973 Costa Rican Agricultural Census.

4.23 Consumer Income

Family and per-capita income levels are important variables influencing the demand for purchased food and related marketing services. At the time the field work was completed for the present research, there was no information available on the absolute or relative levels of income of the consumers of either county. Information was just becoming available from a country-wide survey on general levels of rural and urban income, although this was still considered too general for the purposes of the detailed county case studies. For this reason, the consumer surveys undertaken contained a short section on household monetary income by all family members economically active. And in order to compare results with the national study, the type and approach of the questions asked were purposely designed along as similar lines as possible of this previous study, with one major exception. The present study did not include estimates of the value of farm perquisites or rent of homes in calculating total family income.

Results are shown in Table 4.6. Before discussing these, however, it is important to consider that using a one-visit, recall survey instrument to measure family income is subject to many sources of error; resulting information must be carefully kept in perspective. Two special problems also arise in measuring income among the rural population: (1) income records are usually not available and farmers have only a vague idea of their real income;

Table 4.6. The Distribution of Sample Families by Monthly Per Capita Income Groups in Urban, Village, and Rural Areas of Naranjo and Puriscal Counties in 1973

| Monthly Per Capita Income Group[1] (1973 Colones) | Urban (County Seat) | | Village | | Rural (Dispersed Farms) | | Total County (Weighted Averages) |
|---|---|---|---|---|---|---|---|
| | Number of Families | Percentage | Number of Families | Percentage | Number of Families | Percentage | Percentage |
| **Naranjo County** | | | | | | | |
| 0-49 | 5 | 6 | 8 | 13 | 9 | 14 | 11 |
| 50-99 | 18 | 23 | 21 | 35 | 29 | 44 | 35 |
| 100-149 | 23 | 30 | 11 | 18 | 15 | 23 | 24 |
| 150-299 | 23 | 30 | 15 | 25 | 9 | 14 | 22 |
| 300-599 | 9 | 11 | 5 | 9 | 3 | 5 | 8 |
| 600 and up | --- | --- | --- | --- | --- | --- | --- |
| Total Number of Families | 78 | 100 | 60 | 100 | 65 | 100 | 100 |
| Average Monthly Per Capita Income | $171 | | $137 | | $110 | | $138 |
| Average Monthly Family Income | $869 | | $717 | | $622 | | $727 |
| **Puriscal County** | | | | | | | |
| 0-49 | 4 | 11 | 8 | 29 | 19 | 34 | 29 |
| 50-99 | 10 | 28 | 12 | 43 | 25 | 45 | 42 |
| 100-149 | 5 | 14 | 5 | 18 | 4 | 7 | 11 |
| 150-299 | 11 | 30 | 3 | 11 | 8 | 14 | 16 |
| 300-599 | 4 | 11 | --- | --- | --- | --- | 1 |
| 600 and up | 2 | 6 | --- | --- | --- | --- | 1 |
| Total Number of Families | 36 | 100 | 28 | 100 | 56 | 100 | 100 |
| Average Monthly Per Capita Income | $207 | | $ 83 | | $ 79 | | $ 98 |
| Average Monthly Family Income | $785 | | $468 | | $434 | | $498 |

[1] These groups are obtained by dividing monthly family income by the number of family members.
Source: 1973 PIMA Consumer Surveys.

(2) it is very difficult, if not impossible, in a one-visit, recall survey to accurately measure the amount of farm production consumed on the farm. As mentioned, due to limited time and resources during the present survey, there was no effort to measure the value of farm perquisites nor to impute a rental value for home ownership as additional sources of income. Thus, survey results must be used carefully and cross-consistency checks of information will be utilized whenever possible. For this purpose, Table 4.7 contains information from the 1971 Cespedes study on national income levels.

Given these caveats, information obtained in the two counties appears reasonable, although there are indications that the absolute levels of family and per-capita income may be underestimated. The average 1973 per-capita income for all areas of Naranjo County is exactly equal to the 1971 average for all rural areas in the Cespedes study. But his definition of rural excludes all areas recognized by the Census Bureau as urban; i.e., almost all county seat towns. Comparison of the per-capita income in the urban area of Naranjo County to the national average for urban areas shows a major difference ($171 as compared to $318 in the Cespedes study). This could be consistent, however, as the urban income figures in the Cespedes study are heavily influenced by data from the metropolitan area of San Jose, and it is consistent for income levels to be higher here than in county seat towns of primarily rural counties.

Table 4.7. Distribution of Sample of 2,965 Families by Monthly Per Capita Income Groups in Rural and Urban Areas of Costa Rica in 1971

| Monthly Per Capita Income Group (1971 Colones) | Urban[1] | | Rural[1] | | Entire Country | |
|---|---|---|---|---|---|---|
| | Number of Families | Percentage | Number of Families | Percentage | Number of Families | Percentage |
| 0-49 | 18 | 1 | 139 | 8 | 157 | 6 |
| 50-99 | 121 | 10 | 524 | 31 | 645 | 22 |
| 100-159 | 209 | 17 | 479 | 28 | 688 | 23 |
| 160-329 | 436 | 35 | 431 | 25 | 867 | 29 |
| 330-499 | 182 | 15 | 91 | 5 | 273 | 9 |
| 500 and above | 273 | 22 | 62 | 3 | 335 | 11 |
| Total Number of Families | 1,239 | 100 | 1,726 | 100 | 2,965 | 100 |
| Average Monthly Per Capita Income | $ 318 | | $138 | | $ 210 | |
| Average Monthly Family Income | $1,703 | | $796 | | $1,175 | |

[1]"Urban" is defined as all areas recognized by Costa Rican Census Bureau as urban; i.e., most county seat towns and cities. "Rural" is all other areas of the country.

Source: Adapted from Victor Hugo Cepedes, Costa Rica: La Distribucion del Ingreso y el Consumo de Algunos Alimentos, Serie Economia y Estadistica No. 45 (San Jose: Universidad de Costa Rica), p. 51.

The findings of the relative distribution of income among the population of Naranjo County compare closely with the Cespedes study. As a county average, some 70 percent of the sample families had monthly per-capita incomes of $149 or less. The Cespedes study found as a national rural average that 67 percent of the families received less than $159.

Finally, since Costa Rica experienced an average rate of nominal growth in per-capita gross national product of 15 percent per year between 1971 and 1973, there may be a problem with the average family and per-capita estimates for Naranjo in 1973 being approximately equal to those of the Cespedes work of 1971. One obvious explanation is that the Cespedes study is of the entire rural population, while Naranjo is a specific rural county. There is no statistical reason for these to be similar. Yet this may indicate that the Naranjo income levels are underestimated. One explanation is the exclusion of estimates of home rents for those families owning their own homes. Given that an estimated majority of those surveyed in each county own their own homes and that those living on farms do consume some percentage of farm production, including these items as additional sources of income would increase total family income. On the other hand, it is doubtful that this would explain the entire amount of apparent underestimation, since overall levels of consumption of farm perquisites are relatively low for rural consumers in the county.

Incomes for Puriscal County are substantially below those in Naranjo. Likewise, the relative distribution of income here shows a higher percentage of the population in the lower per-capita income groupings. While an estimated 70 percent of Naranjo's population has monthly per-capita income of $149 or less, Puriscal has over 80 percent. It is important to note, however, that the consumer survey in Puriscal showed somewhat higher levels of consumption of farm perquisites. Including these, as well as imputed values of home rent in income estimates would improve the relative position of Puriscal consumers compared to Naranjo. Yet the economy of Puriscal is visually poorer than that of Naranjo. The agriculture is more diversified, and there is only about one-fifth as much coffee produced yearly as in Naranjo. So it appears internally consistent to observe lower levels of household income in Puriscal.

In summary, it is concluded that the income data for consumers in the two counties is internally consistent and reasonably comparable to results of the Cespedes study. The problem of not including estimates of the value of farm perquisites in the income data causes some underestimation. In general, however, these income figures show the relatively unfavorable position of the Naranjo and Puriscal county populations (and of most other rural areas of the country). Costa Rican national per-capita yearly disposable income in 1973 (the figure perhaps most comparable

to our estimates) was approximately $555 U.S. dollars.[1] The yearly average per-capita cash income for Naranjo is about $190, and $135 for Puriscal. The village and dispersed farm populations in both counties have incomes below these county-wide averages.

### 4.24 Transportation Modes and Refrigerator Ownership Patterns

Two important additional variables that influence consumer food purchasing patterns are the modes of transportation available and the possibility of storing perishable food in the home for longer periods of time in refrigeration devices. Information on private automobile (or truck) and refrigerator ownership patterns was also collected in the consumer survey, and results are shown in Table 4.8. Again, the overall higher income of Naranjo County shows up, with an average of 11 percent of the families owning both autos and refrigerators, while only three percent own autos and five percent refrigerators in Puriscal.

With only a relatively small percentage of families owning private transportation modes in both counties, public transportation becomes quite important in facilitating consumer mobility. Both counties have a relatively well-developed, privately-operated, public transport system. As a general rule each township of both counties

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[1] Exchange rate: 8.7 Costa Rican Colones = 1 U.S. Dollar.

Table 4.8. Automobile and Refrigerator Ownership Patterns in Three Areas of Naranjo and Puriscal Counties

| Area of County | Naranjo County | | Puriscal County | |
|---|---|---|---|---|
| | % Families Owning Auto | % Families Owning Refrigerator | % Families Owning Auto | % Families Owning Refrigerator |
| Urban (County Seat) | 13 | 19 | 5 | 23 |
| Village | 12 | 10 | 3 | 3 |
| Rural (Dispersed Farms) | 9 | 5 | 1 | 5 |
| Total County | 11 | 11 | 3 | 5 |

Source: 1973 PIMA Consumer Surveys.

is served by at least one, and usually two, daily bus routes carrying passengers to and from the county seat. On weekend days in both counties, the number of daily runs along each township route increases to at least three, and sometimes as many as five, round trips from the most distant pickup point in each township to its respective county seat.

As a rule, also, the bus routes serving each township are independently owned and operated by local individuals. Buses used are privately purchased, operated, and maintained by their owners. There is no public subsidy of equipment or operating costs, and rates are not regulated by county or national agencies. The coverage of specific routes in each township is a function of available roads and their maintenance condition and of the bus owner's sense of where demand density is sufficient to warrant including that area. This is no major problem, however, since most townships are serviced from their county seats by one more-or-less, all-weather gravel road. Thus, the bus owner/operator simply decides how far he will penetrate a particular area (route coverage is shown on the county maps in Appendix B).

## 4.3 Structural Characteristics of Food Merchants

### 4.31 Number, Type and Location of Outlets

The previous section outlined basic structural conditions facing consumers in the two counties. Before considering consumer behavior, given these constraints, let us

examine the supply of alternative retail food marketing services available to rural and urban residents in the counties. Commercial license records showed 133 and 159 food merchants operating in Naranjo and Puriscal Counties, respectively, when the PIMA business surveys were carried out.

As shown in Table 4.9, only one of these businesses is exclusively wholesale and only five are retail-wholesale operations. The National Production Council, a public food marketing and regulation agency, has one relatively broad-line grocery store in each county seat. The remainder are small-scale retail shops selling a general line of grocery items. The different stalls in each county seat public market are highly specialized according to product lines. The only fresh meat retailers in Naranjo County are market stall outlets, whereas in Puriscal County there are public market meat stalls, meat stores located in the central business district of the county seat, and two meat stores in the rural townships. The small, and retail-wholesale grocery stores do not carry more highly perishable products like fresh meat and vegetables. Their line of grocery items does generally include some processed meats, eggs, less perishable dairy items, vegetables (such as potatoes and onions), and beverages. As a rule, only those retail grocery stores with a liquor license will sell beer and liquor by the drink, with the exception of the retailer/wholesalers, who act primarily as wholesale suppliers of liquor to consumers and retailers.

Table 4.9 The Number of Food Merchants in Naranjo and Puriscal Counties, Classified by Type of Merchant and Location and by Type of Sales

| Type of Merchant and Location in Counties | Total Number of Food Merchants | | Retail Sales | | Wholesale Sales | | Retail/Wholesale Sales | |
|---|---|---|---|---|---|---|---|---|
| | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal |
| Inside Public Market in County Seat Town | 21 | 26 | 21 | 26 | 0 | 0 | 0 | 0 |
| Grain and Processed Item Stalls | 4 | 8 | 4 | 8 | --- | --- | --- | --- |
| Fruit and Vegetable Stalls | 12 | 14 | 12 | 14 | --- | --- | --- | --- |
| Meat Stalls | 4 | 4 | 4 | 4 | --- | --- | --- | --- |
| Fish Stalls | 1 | --- | 1 | --- | --- | --- | --- | --- |
| Inside Commercial Business District of County Seat Towns | 13 | 14 | 9 | 12 | 1 | 0 | 3 | 2 |
| Small Grocery Stores | 6 | 6 | 6 | 6 | --- | --- | --- | --- |
| Small Grocery and Liquor Stores | 2 | 1 | 2 | 1 | --- | --- | --- | --- |
| Retail/Wholesale Grocery Stores | 4 | 2 | --- | --- | 1 | --- | 3 | 2 |
| CNP (State) Store | 1 | 1 | 1 | 1 | --- | --- | --- | --- |
| Meat Stores | --- | 4 | --- | 4 | --- | --- | --- | --- |
| Remaining Area of County Seat Towns | 19 | 13 | 19 | 13 | 0 | 0 | 0 | 0 |
| Small Grocery Stores[1/] | 16 | 13 | 16 | 13 | --- | --- | --- | --- |
| Small Grocery and Vegetable Stores | 3 | --- | 3 | --- | --- | --- | --- | --- |
| Rural Area of County (Nucleated Plus Dispersed Populations) | 80 | 106 | 80 | 106 | 0 | 0 | 0 | 0 |
| Small Grocery Stores | 41 | 12 | 41 | 12 | --- | --- | --- | --- |
| Small Grocery and Liquor Stores | 39 | 92 | 39 | 92 | --- | --- | --- | --- |
| Meat Stores | --- | 2 | --- | 2 | --- | --- | --- | --- |
| Total for Each County | 133 | 159 | 129 | 157 | 1 | 0 | 3 | 2 |

[1/] Some of these also sell liquor.
Source: Naranjo and Puriscal County Commercial License Records and 1973 PIMA Retail Surveys.

In the respective county seat towns, a majority of the food merchants are located geographically within a relatively dense commercial area, generally contiguous to other non-food businesses, which is labeled the "central (or commercial) business district" (CBD) for purposes of the present study. Maps in Appendix B illustrate the area included in this for each county seat as well as the location of food merchants in each CBD, county seat and rural township of both counties. To some extent the definition of a CBD is arbitrary, although it is generally true that the food and non-food businesses within these areas are the primary commercial attraction for non-county seat consumers. A relatively broad line of convenience and shopping goods is available within the CBD's. On the other hand, the other small food and liquor stores located outside the CBD's in each county seat are primarily convenience outlets for local residents and do not sell any significant amount of items to rural consumers.

In each county there is also a relatively large number of small grocery and grocery and liquor stores located in the rural areas. To better view the geographical distribution, Table 4.10 shows an estimated breakdown of these retailers by the typical rural settlement patterns identified in Section 4.2. Thus, there is considerable difference in the location patterns of these throughout the rural areas. In both counties something over half of the stores are located in more dispersed population density

Table 4.10 The Number of Rural Area Food Retailers in Naranjo and Puriscal Counties Grouped by Rural Settlement Location

| Type of Retail Food Merchant and Rural Settlement Location | Naranjo County | | Puriscal County | |
|---|---|---|---|---|
| | Number of Retailers[1/] | Average Number of Retailers Per Location | Number of Retailers[1/] | Average Number of Retailers Per Location |
| Large Villages | 22 (28%) | 3.1 | 12 (11%) | 3.0 |
| Small Villages | 13 (16%) | 1.6 | 27 (25%) | 2.2 |
| Dispersed | 45 (56%) | --- | 67 (63%) | --- |
| -Located in other small population concentrations | (6) | (1.5) | (26) | (1.4) |
| -Located in more dispersed sites | (39) | --- | (41) | --- |
| TOTAL NUMBER Rural Food Retailers | 80 (100%) | | 106 (100%) | |

[1/] Includes both small grocery stores and small grocery stores/bars.
Source: Naranjo and Puriscal County Business License Records and Costa Rica Census Maps.

areas. Each large village identified has an average of three outlets, while each small one has one or two. Together these two types of rural communities account for approximately 40 percent of the retailers in both counties.

By using estimates previously derived on the population located within various distances of the communities in which these outlets are located, it is possible to see what percentage of rural consumers is within a convenient walking distance of the stores. In Naranjo, an estimated 8,400 consumers, or 61 percent of the rural population, live within a 900-meter walk from these stores. Only about 6,700, or 32 percent, of the rural population of Puriscal live within this distance. The latter is probably due to the fact that Puriscal is a much larger county than Naranjo, with overall lower population density.

The above indicates that stores located in these communities have a potentially higher density of demand than those in more dispersed locations. The other stores are generally spread over the remaining rural area so that almost all rural consumers are within easy walking distance of a rural outlet.

### 4.32 Volume of Sales by Retailers

In order to examine the significance of the location of the various food retailing services in the counties, it is necessary to know the relative volume of sales of different foods by these outlets. As briefly discussed in

Chapter II, in Costa Rica (as with most developing countries) there are no public data sources on volume of sales by commercial establishments. Therefore, the only way to identify trade channels and relative sales positions of different food merchants is to design and carry out a sales volume survey. When stores handle only a few basic items, these studies are manageable. But due to the relatively large number of items carried by food retailers in Costa Rica, it is difficult and expensive to design a survey on the basis of individual products carried. Surveying quantities purchased, and purchase and sales prices by retailers is also difficult because of the suspicion by retailers that data will be used for tax or product mark-up regulation purposes.

For PIMA surveys, relative flows were estimated of eight important aggregate product groups instead of for individual products within these groups. These were not measured by quantity but by monthly value of purchases by merchants of each group of products. Obviously these underestimate the total retail value of sales to consumers by the amount of wholesale-retail mark-ups applied by distinct types of retailers. Given limited research resources and time, however, it was felt that they would yield reasonable estimates of the relative importance of the various trade flows in the county food distribution subsystems. Note that these estimates will be matched against information collected via consumer surveys, thus providing

for tests of internal and cross consistency of the retail sales data.

Results of this survey are shown in Tables 4.11 and 4.12. Assuming equal percentage mark-ups for all outlets, the purchase data may be considered reasonable estimates of sales. As a group, the public market stalls handle approximately 15 percent of the value of all food and beverages handled at retail in each county. Thus they play a relatively small role in total food sales, although for meat and a broad line of fruits and vegetables they do handle a much larger relative share of total county sales. Hence, these facilities are (and as later analysis will show, apparently will increasingly become) specialty outlets and not broad-line sources of food products. This specialization appears to be more advanced in Naranjo, where meat is only sold by market stall outlets.

While public market outlets in both counties are the only retail source of a broad line of fruits and vegetables, they are not the only stores selling a selected number of these products. In fact, rural Naranjo retailers as a group handle twice the value of this product line, although the majority of sales is made up by only two primary items: potatoes and onions. Rural Puriscal outlets also handle these two products, although apparently in smaller relative quantities. And this appears internally consistent, since rural incomes are lower in Puriscal

Table 4.11 Monthly Food Retailer Purchases in Naranjo County by Store Type and Product Group (in Costa Rican Colones)

| Type and Location of Food Retailers in County | Monthly Value of Retailer Purchases for Resale | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Grain | Processed Food | Meat Products | Poultry and Eggs | Dairy Products | Fruit and Vegetables | Beverages and Liquors | Store Type Totals | | Location Totals | |
| | | | | | | | | Total | % | Total | % |
| Public Markets (County Seat) | | | | | | | | | | | |
| Grain and Processed Item Stalls | $ 4,260 | $ 2,312 | $ 68 | $ 860 | $ 1,080 | $ 1,340 | --- | $ 9,920 | 1 | | |
| Fruit and Vegetable Stalls | 1,440 | --- | --- | --- | --- | 10,872 | $ 408 | 12,720 | 2 | | |
| Meat Stalls | --- | --- | 83,979 | --- | --- | --- | --- | 83,979 | 12 | | |
| Fish Stalls | --- | --- | 1,300 | --- | --- | --- | --- | 1,300 | --- | | |
| (Subtotal) | $ 5,700 | $ 2,312 | $85,347 | $ 860 | $ 1,080 | $12,212 | $ 408 | | | $107,919 | 15 |
| Commercial Business District (County Seat) | | | | | | | | | | | |
| Small Grocery Store | $ 15,200 | $ 34,400 | $ 2,872 | $ 5,440 | $ 2,240 | $ 3,460 | $ 872 | $ 64,484 | 9 | | |
| Small Grocery and Liquor Stores | 2,000 | 3,100 | 320 | 340 | --- | 660 | 1,6[illegible] | 8,020 | 1 | | |
| Retail/Wholesale Grocery Stores 2/ | 98,000 | 47,200 | 840 | --- | 1,680 | 2,280 | 2,400 | 172,400 | 24 | | |
| CNP (State) Store 2/ | 13,108 | 29,470 | --- | 3,919 | 1,633 | 2,519 | --- | 48,649 | 6 | | |
| (Subtotal) | $128,308 | $130,170 | $ 4,032 | $ 9,699 | $ 5,553 | $ 8,918 | $ 4,872 | | | $291,553 | 40 |
| Remaining Area of County Seat Town | | | | | | | | | | | |
| Small Grocery Stores 4/ | $ 19,202 | $ 8,400 | $ 1,600 | $ 3,831 | $ 2,881 | $ 3,520 | $ 4,907 | $ 44,341 | 6 | | |
| Small Grocery and Vegetable Stores | 2,400 | 480 | 300 | 240 | 360 | 600 | 144 | 4,524 | 1 | | |
| (Subtotal) | $ 21,602 | $ 8,880 | $ 1,900 | $ 4,071 | $ 3,241 | $ 4,120 | $ 5,051 | | | $ 48,865 | 7 |
| Rural Area of County | | | | | | | | | | | |
| Small Grocery Stores | $ 51,473 | $ 36,425 | $ 2,598 | $ 505 | $ 6,630 | $ 5,984 | $ 5,797 | $111,516 | 15 | | |
| Small Grocery and Liquor Stores | 56,273 | 59,018 | 3,426 | 3,185 | 5,589 | 18,522 | 22,245 | 168,258 | 23 | | |
| (Subtotal) | $107,746 | $ 97,547 | $ 6,024 | $ 3,690 | $12,219 | $24,506 | $28,042 | | | $279,774 | 38 |
| TOTALS | $263,356 | $238,909 | $97,303 | $18,320 | $22,093 | $49,757 | $38,373 1/ | $728,111 | 100 | $728,111 | 100 |

1/ This includes only the total of beverages sold by food merchants.
2/ Total retail sales only included in table.
3/ Data for this store is in terms of monthly retail sales to consumers.
4/ Some of these stores also sell liquor.
Source; 1973 PJMA Retail Surveys.

Table 4.12 Monthly Food Retailer Purchases in Puriscal County by Store Types and Product Groups (in Costa Rican Colones)

| Type and Location of Food Retailers in County | Monthly Value of Retailer Purchases for Resale | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Grain | Processed Food | Meat Products | Poultry and Eggs | Dairy Products | Fruit and Vegetables | Beverages and Liquors | Store Type Totals | | Location Totals | |
| | | | | | | | | Total | % | Total | % |
| **Public Markets (County Seat)** | | | | | | | | | | | |
| Grain and Processed Item Stalls | $ 22,025 | $ 23,622 | --- | $ 485 | $ 2,861 | $ 3,762 | $ 60 | $ 52,815 | 6 | | |
| Fruit and Vegetable Stalls | --- | --- | --- | --- | --- | 37,697 | --- | 37,697 | 4 | | |
| Meat Stalls | --- | --- | $ 29,792 | --- | --- | --- | --- | 29,792 | 3 | | |
| (Subtotal) | $ 22,025 | $ 23,622 | $ 29,792 | $ 485 | $ 2,861 | $41,459 | $ 60 | | | $120,304 | 14 |
| **Commercial Business District (County Seat)** | | | | | | | | | | | |
| Small Grocery Stores | $ 5,880 | $ 5,160 | $ 640 | --- | $ 2,800 | $ 1,960 | $ 1,568 | $ 18,028 | 2 | | |
| Small Grocery and Liquor Stores | 1,600 | 20,000 | 120 | 300 | --- | 600 | 2,400 | 25,020 | 3 | | |
| Retail/Wholesale Grocery Stores[2] | 14,181 | 23,684 | 457 | 509 | 93 | 2,448 | 4,085 | 45,457 | 5 | | |
| CNP (State) Stores[3] | 30,782 | 33,029 | 638 | 1,667 | 1,667 | 2,024 | --- | 69,807 | 8 | | |
| Meat Stores | --- | --- | 131,936 | --- | --- | --- | --- | 131,936 | 15 | | |
| (Subtotal) | $ 52,443 | $ 81,893 | $131,791 | $2,476 | $ 4,560 | $ 7,032 | $ 8,053 | | | $290,248 | 34 |
| **Remaining Area of County Seat Town** | | | | | | | | | | | |
| Small Grocery Stores[4] | $ 9,153 | $ 11,219 | $ 514 | $ 680 | --- | $ 1,607 | $ 14,135 | $ 37,308 | 4 | | |
| (Subtotal) | $ 9,153 | $ 11,219 | $ 514 | $ 680 | --- | $ 1,607 | $ 14,135 | | | $ 37,308 | 4 |
| **Rural Area of County** | | | | | | | | | | | |
| Small Grocery Stores | $ 5,470 | $ 7,838 | $ 612 | --- | $ 208 | $ 1,224 | $ 2,685 | $ 18,037 | 2 | | |
| Small Grocery and Liquor Stores | 84,314 | 177,601 | 5,910 | $1,605 | 3,125 | 19,122 | 95,929 | 387,606 | 45 | | |
| Meat Stores | --- | --- | 14,400 | --- | --- | --- | --- | 14,400 | 2 | | |
| (Subtotal) | $ 89,784 | $185,439 | $ 20,922 | $1,605 | $ 3,333 | $20,346 | $ 98,614 | | | $420,043 | 48 |
| TOTALS | $173,405 | $302,173 | $185,019 | $5,246 | $10,754 | $70,444 | $120,862[1] | $867,903 | 100 | $867,903 | 100 |

[1] This includes only the total of beverages sold by food merchants.
[2] Total retail sales only included in table.
[3] Data for this store is in terms of monthly retail sales to consumers.
[4] Some of these stores also sell liquor.
Source: 1973 IIMA Retail Surveys.

and consumer data show generally higher levels of on-farm production and consumption of fruits and vegetables.

The major food retail outlets from an individual store volume of business are located in the CBD groupings. In the aggregate, these stores move more than twice the value of the public market outlets. The most important individual outlets here are the retail/wholesale groceries, although only their retail sales are shown in the tables. In Naranjo County, only three retail/wholesale groceries handle 24 percent of the entire county's monthly retail value. This type of store does not show up as strongly in Puriscal, which is consistent with visual observations made during the field research. Still, there is also reason to believe that the Puriscal surveys underestimated their retail and wholesale sales and the percentage of these which is sold at retail. This will be discussed in more detail later in the study.

Finally, the state-owned and operated CNP stores compete in each county with six to eight percent of total sales. The outlet in Puriscal is particularly important since it appears to be the single largest retail firm (although this is not true if the volume of sales by retailer/wholesalers is underestimated).

In both county seats, the group of small grocery stores located outside the CBD, but still within the physical boundaries of the towns, handle a relatively important volume of sales, given these are not large communities and

distances from a majority of households to the CBD are not great. Sales by these more local outlets thus indicate a demand for convenience and other more personal services, even in these small county seat towns. A similar demand has been well documented for large urban areas of Latin American cities, but conventional wisdom has generally been that this demand was nonexistent in smaller communities.

Perhaps the major finding of this business survey is the important market share of the outlets in the various rural area locations. Unfortunately it was not possible to disaggregate the value of purchase information according to the previously identified location points (large and small villages, and dispersed). Instead, the breakdown was done according to whether or not the small rural grocery store did or did not have an official county liquor license and did in fact sell liquor, among other things. In both counties these two types of rural outlets move over one-third of their county's total sales of food and beverages. The 106 rural stores in Puriscal account for almost one-half of total county monthly sales. Within this group the small grocery and liquor stores are also relatively much more important in Puriscal than in Naranjo. This is partially explained by the larger relative percentage of beverage and liquor sales by the Puriscal stores. Yet it is also due to the larger relative number of rural grocery stores in Puriscal with liquor licenses. Both of

these conditions are probably due to the less densely populated and more isolated nature of much of the rural area of Puriscal County. Under these circumstances almost all of the grocery stores take on social as well as economic functions, and selling beer and aguardiente by the drink is an important part of local social activity.

### 4.33 A Comparison of Retailer Characteristics

Given the general nature and relative importance of the various retail food merchants in the counties, let us examine in more detail selected characteristics of these. The data in Table 4.13 show considerable similarity among outlets in rural areas and considerable differences among those in the county seat towns of the two counties.

The rural outlets in both counties tend to be owner-operated businesses, with many of the larger ones having an additional full- or part-time salaried employee. On the average, both types of rural stores have been operated by their present owners for from four to six years. Yet 20 percent of the Naranjo rural outlets and 35 percent of those in Puriscal have been in operation, by their present owners, one year or less. So there is probably a fairly frequent turnover of these newer outlets over time. This also indicates there is a rather wide range in most of the characteristics shown in Table 4.13. Note, in addition, that sales volume indicators for the small grocery and liquor stores do not include the beverages and liquor product line.

Table 4.13 General Characteristics of County Food Retailers by Type of Outlet and Location

| Type of Food Merchant and Location in Counties | Average Store Size M² | | Average Monthly Purchases[1] (Colones) | | Average Number of Employees | | Average Number of Non-Salaried Employees | | Average Number of Years in Operation | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal |
| **Inside Public Market in County Seat Town** | | | | | | | | | | |
| Grain and Processed Item Stalls | 30 | 20 | $ 2,480 | $ 6,592 | 1.8 | 1.6 | .3 | --- | 17.5 | 4.1 |
| Fruit and Vegetable Stalls | 14 | 6 | 1,060 | 2,693 | 1.3 | 1.1 | .9 | 1.1 | 8.4 | 5.8 |
| Meat Stalls | 27 | 16 | 21,000 | 7,448 | 1.4 | 1.7 | 1.0 | 1.3 | 2.7 | 2.3 |
| Fish Stalls | 24 | --- | 1,300 | --- | 1.0 | --- | 1.0 | --- | 1.0 | --- |
| **Inside Commercial Business District of County Seat Towns** | | | | | | | | | | |
| Small Grocery Stores | 86 | 27 | 10,747 | 3,005 | 2.3 | 1.3 | 1.0 | 1.0 | 2.7 | 4.7 |
| Small Grocery and Liquor Stores[2] | 30 | 200 | 3,180[1] | 25,020[1] | 2.0 | 3.0 | 1.5 | --- | 15.0 | 2.0 |
| Retail/Wholesale Grocery Stores[2] | 284 | 185 | 57,467[3][4] | 20,686[3][4] | 9.0 | 7.5 | --- | --- | 17.0 | 11.0 |
| CNP (State) Store | 100 | 100 | 46,694[4] | 69,807[4] | 4.0 | 4.0 | --- | --- | 4.0 | 5.5 |
| Meat Stores | --- | 71 | --- | 32,984 | --- | 3.3 | --- | .7 | --- | 21.0 |
| **Remaining Area of County Seat Towns** | | | | | | | | | | |
| Small Grocery Stores[3] | 79 | 25 | 2,771 | 2,870 | 2.2 | 1.0 | 1.3 | .6 | 11.0 | 3.4 |
| Small Grocery and Vegetable Stores | 20 | --- | 1,508 | --- | 1.0 | --- | 1.0 | --- | 1.0 | --- |
| **Rural Area of County (Nucleated Plus Dispersed Populations)** | | | | | | | | | | |
| Small Grocery Stores | 37 | 25 | 2,720 | 1,279 | 2.1 | 1.6 | 1.4 | 0.7 | 6.1 | 4.6 |
| Small Grocery and Liquor Stores | 64 | 55 | 3,743 | 3,170 | 1.9 | 1.5 | 1.0 | 0.9 | 5.5 | 5.7 |
| Meat Stores | --- | 25 | --- | 7,200 | --- | 2.5 | --- | 2.0 | --- | 2.0 |

[1] Purchase totals for these stores do not include liquor and other alchoholic beverages.
[2] Purchase figures include only retail sales by these retailer/wholesalers.
[3] Some of these stores also sell liquor.
[4] These are monthly retail sales and not purchases.
Source: 1973 PIMA Retail Surveys.

Thus, these stores are larger than the small grocery stores in rural areas not only because they sell an additional product line (beverages and liquor), but because they also sell approximately one-third more of all food products.

Among the outlets in the CBD's of the two counties, the retail/wholesale grocery stores stand out as established and important food distribution institutions. Along with the state grocery stores (CNP), these are the largest food retailers as well as wholesale suppliers located in each county. They have an average of seven to nine salaried employees and have all been in business at least five years, with the average being much longer. The stores in Naranjo are significantly larger, both in retail and wholesale sales, than those in Puriscal. The stores in Puriscal are still important, although they tend to have less of a market share than those in Naranjo. It is hypothesized that over time the relative importance of the retailer/wholesalers in Puriscal's food distribution subsystem will tend to increase in size to a position similar to that of the outlets in Naranjo County.

The state-owned and operated stores in each county are part of the National Production Council's chain of some 135 retail food stores located throughout Costa Rica. The government's objective in operating these is to realize a stabilizing effect in retail food prices and to supply products in areas of the country not adequately served by the

private sector. The CNP chain has grown from 17 stores in 1950 to 135 in 1973, handling in aggregate an estimated four percent of all food and related items sold in Costa Rica. In the accounting year 1971-72, considering only direct costs and sales, the CNP lost on its retail operation an amount equal to about 2 percent of total sales.[1] The Naranjo stores showed a 3.8 percent loss on total sales and Puriscal, approximately 2 percent. Note also that these losses do not account for indirect costs of subsidized capital funds allocated to the CNP from the Costa Rican National Bank. Likewise, the agency sustains these losses in spite of documented, substantial price discounts from suppliers for buying in large volumes and for paying in cash.[2]

The public market retailers in both counties tend to have the smallest-sized outlets, although this does vary by product line. Most are owner-operated businesses, with the grain and processed food stalls tending to hire an additional employee. The fruit and vegetable stalls in each case are very small, generally one-person operations. With the exception of the meat outlets, all the stalls in the Puriscal market do a larger volume of business than those

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[1]Consejo Nacional de Produccion--Departamento Almacenes y Expendios--Informe Anual de Operaciones Periodo 1971/1972, p. 6.

[2]Peat, Marwick and Mitchell and Co.--Estudio Tecnico-Administracion del Consejo Nacional de Produccion--Tomo Numero 7 (San Jose, Costa Rica), p. III-20.

in Naranjo, which is probably due to the smaller sized retailer / wholesalers in the former. With less competition, retailers in the public market have maintained a larger share of the market and have perhaps given more viability to the food sales activities going on in the market. It remains to be seen, however, what happens over time as the retailer / wholesalers become more important, as apparently they did in Naranjo.

Many public markets in developing countries have a periodic nature, in that most businesses will only operate on one or two days per week. In Naranjo and Puriscal, all market stalls are open six to seven days per week. There is a major sales day (Saturday) in each market which historically was the day on which the periodic market operated. Then, as now, farmers and other rural residents came to the county seats to conduct business and social activities. But as we have observed with the food sales volume data, consumers only come to the county seat and public market to buy certain products, although in both counties they still tend to make this trip on Saturdays.

Data in Table 4.14 show a breakdown of the total sales area available in each market. The variety of food and other businesses indicates how important the public markets were historically. When the national Costa Rican economy was more agriculturally oriented and regions and counties more self-sufficient, the public markets probably housed a majority of the commerce in the community. Most

Table 4.14 Types of Businesses and Area Occupied in Naranjo and Puriscal County Public Markets

| Type of Business Establishment | Naranjo Public Market | | Puriscal Public Market | |
|---|---|---|---|---|
| | Number of Shops | Area Occupied | Number of Shops | Area Occupied |
| Fruit and Vegetable Stalls | 10 | 106 $M^2$ | 14 | 50 $M^2$ |
| Grain and Processed Item Stalls | 4 | 190 $M^2$ | 8 | 89 $M^2$ |
| Meat Stalls | 4 | 90 $M^2$ | 4 | 77 $M^2$ |
| Fish Stalls | 1 | 20 $M^2$ | - | -- |
| Clothing and Drygoods Shops | 3 | 61 $M^2$ | 7 | 131 $M^2$ |
| Candy and Soft Drinks Shops | 3 | 8 $M^2$ | 2 | 46 $M^2$ |
| Bar and Restaurant | 4 | 135 $M^2$ | 3 | 35 $M^2$ |
| Shoe Shop | 1 | 26 $M^2$ | 3 | 46 $M^2$ |
| Barber Shop | 1 | 25 $M^2$ | - | -- |
| Storage Area for Grains | 4 | 65 $M^2$ | - | -- |
| Bathrooms | 2 | 12 $M^2$ | 2 | 10 $M^2$ |
| Hallway and Circulation Area | - | 419 $M^2$ | - | 327 $M^2$ |
| TOTAL | 37 | 1157 | 43 | 811 |

Source: Naranjo and Puriscal County Business License and Municipal Market Administrator Records.

of these businesses were small, and the publicly provided (with usually subsidized rents) commercial sales space helped to establish a concentration of services for county residents. Today, however, entire commercial business districts house commercial services, with those in the public markets maintaining only a share of local demand.

In discussing the public market, the function of providing an assembly point for farmers' produce has not been considered. This will be covered in detail in Section 4.5, on retailer and wholesaler behavior, although it is noted here that the Naranjo public market plays no role in the agricultural product assembly process. In Puriscal there is a limited relationship, although it is diminishing. In other counties local region product assembly functions vary, depending on the agriculture of the area. In general, however, assembly is not a dominant function in county seat public markets; and when it does apply, it must be carefully studied to define the best role for the public market and other infrastructural and institutional needs.

## 4.4 Consumer Behavior and Performance Considerations

### 4.41 Food Consumption-Nonconsumption and Income Relationships

Previous information on retailers' location and sales indicates that both urban and rural consumers in the two counties purchase some portion of their food supply. But this is hardly a complete picture, since there is no fix on specific consumer habits and, particularly, upon the amount

of food grown and consumed directly by urban and rural residents. The PIMA consumer surveys attempted a general assessment of this, because an exhaustive product-by-product survey of rural consumption is difficult and expensive, especially if households are visited more than once to minimize error in identifying seasonal consumption habits.

For the present analysis of public market needs, the important consideration was not a detailed demand analysis but a better understanding of the overall relationship between urban and rural food consumption and marketing services. Therefore in the consumer survey a family representative, usually the housewife, was questioned as to whether the household normally consumed a standard set of items in each of seven different product groups; and, if so, whether or not these were generally purchased or home grown.[1] For some of the groups, like bread, milk, eggs, meat, and grains, there are really few items in the groups. Hence, results are more precise. For the fruit and vegetable and processed item groups, there are many items and it is therefore more difficult to generalize.

Results (Table 4.15) show both urban and rural households purchasing an estimated majority of their food supply, although there is a difference among the rural areas of each county. In urban areas of both, over 50 percent of

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[1]See Appendix A for a discussion of the urban and rural household sampling plan. Approximately 7 percent of all urban families were interviewed in each county; 5 percent of Naranjo and 2.5 percent of Puriscal rural families were visited.

Table 4.15 Naranjo and Puriscal County Family Consumption Habits for Selected Food Groups

| Area of Counties and Food Group | Percentage of Families Purchasing for Consumption | Mean Monthly Purchase by Those Purchasing | Percentage of Families Producing for Consumption | Total Percentage of Families Consuming | Percentage of Families Not Consuming | Mean Monthly Purchase for All Households in Sample |
|---|---|---|---|---|---|---|
| **Naranjo-County Seat** | | | | | | |
| Bread | 90 | $ 42 | 1 | 91 | 9 | $ 38 |
| Milk | 92 | 57 | --- | 92 | 8 | 53 |
| Eggs | 56 | 37 | 17 | 73 | 27 | 21 |
| Fruit & Vegetables | 79 | 102 | 1 | 80 | 20 | 81 |
| Meat | 79 | 90 | --- | 79 | 21 | 72 |
| Grains | 100 | 115 | --- | 100 | --- | 115 |
| Processed Foods | 100 | 81 | --- | 100 | --- | 81 |
| Total | | $524 | | | | $462 |
| **Naranjo-Rural Areas**[1/] | | | | | | |
| Bread | 80 | $ 33 | 6 | 86 | 14 | $ 26 |
| Milk | 51 | 47 | 18 | 69 | 31 | 24 |
| Eggs | 24 | 35 | 31 | 55 | 45 | 8 |
| Fruit & Vegetables | 63 | 42 | 18 | 81 | 19 | 27 |
| Meats | 89 | 52 | --- | 89 | 11 | 46 |
| Grains | 99 | 106 | 1 | 100 | --- | 105 |
| Processed Food | 100 | 84 | --- | 100 | --- | 84 |
| Total | | $399 | | | | $321 |
| **Puriscal-County Seat** | | | | | | |
| Bread | 86 | $ 44 | --- | 86 | 14 | $ 37 |
| Milk | 58 | 47 | 19 | 77 | 23 | 27 |
| Eggs | 65 | 42 | 28 | 93 | 7 | 27 |
| Fruit & Vegetables | 81 | 62 | 9 | 90 | 10 | 50 |
| Meat | 79 | 88 | --- | 79 | 21 | 69 |
| Grains | 95 | 92 | 2 | 97 | 3 | 88 |
| Processed Foods | 100 | 106 | --- | 100 | --- | 106 |
| Total | | $481 | | | | $406 |
| **Puriscal-Rural Areas**[1/] | | | | | | |
| Bread | 80 | $ 37 | 1 | 81 | 19 | $ 29 |
| Milk | 22 | 34 | 44 | 66 | 34 | 7 |
| Eggs | 10 | 45 | 83 | 93 | 7 | 5 |
| Fruit & Vegetables | 33 | 49 | 55 | 88 | 12 | 16 |
| Meat | 66 | 63 | 6 | 72 | 28 | 41 |
| Grains | 74 | 93 | 24 | 98 | 2 | 69 |
| Processed Foods | 98 | 95 | --- | 98 | 2 | 93 |
| Total | | $416 | | | | $261 |

[1/] Rural areas include nucleated and dispersed population.
Source: 1973 FIMA Consumer Surveys.

all food groups, and over 80 percent of meats, grains, and processed items are purchased. The more rural nature of Puriscal shows up with a larger number of families producing milk, eggs, and fruits and vegetables for home consumption. In both counties some urban food production is feasible, since some families live in town but own and/or operate farms in rural townships. Many county seat residents also still have a flock of chickens and even a family milk cow in their back yards, especially those located along roads leading into the towns.

Rural Puriscal households home-produce a larger portion of total county rural consumption, especially of the food groups milk, eggs, fruits and vegetables, and grain (beans and corn).[1] Still over two-thirds of all the rural households surveyed in the county purchased the most important components of their family food baskets; i.e., meat, grains, and processed items. Comparing columns three and four of the table, a majority of the milk, eggs, and fruits and vegetables consumed in rural Puriscal was home produced, whereas in Naranjo almost two-thirds was purchased.

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[1]In Naranjo it was expected to find lower on-farm production for consumption of grains, compared to Puriscal. Yet Naranjo survey results for grain are probably underestimated, since they are quite low. They may also be underestimated in Puriscal. It is known, however, from the Cespedes study mentioned in Section 4.2 that virtually all rural families in Costa Rica consume rice as the most important grain in their diets and that no rice is grown in Naranjo; so it would have to be purchased. In Puriscal, 1973 Census data show only about one-fourth of the farms grow rice for home consumption, so the survey results may be reasonable over-all estimates of how many families buy a majority of grains (rice, corn, and beans) consumed.

The data in Table 4.15 separate each family's food group purchases into categories that make it impossible to see aggregated food basket consumption behavior for each household. For example, from among the many possible combinations, there is no way to know if the families who produce milk for household consumption also maintain a small flock of laying hens but purchase everything else. In order to have a feel for this relationship, a second tabulation of the data shows how many of the food groups in each household were purchased or not consumed (Table 4.16). Thus, an estimated 45 percent of rural Naranjo families purchase all of their food supply, while in Puriscal only 9 percent do so. Likewise, in Puriscal a larger percentage of families home produce two, three, four, and five of the seven major groups of food in their market basket. Notice that no families were toally self-sufficient; few produce more than three of the seven food groups identified.

This overview of food consumption habits is based on general food product group information and must be carefully interpreted. Yet is is considered adequate to show the importance of the purchased products and related marketing services to both urban and rural residents. Data in Table 4.17 examine the specific impact of purchases on households in different income groups. Before discussing these, however, remember that estimates of family food purchases and income do not include the value of farm or home perquisites. For these reasons, the table is labeled

Table 4.16 Rural Households' Aggregate Food Consumption Habits

| Number of Food Groups In Each Household: | Naranjo Rural Area | | Puriscal Rural Area | |
|---|---|---|---|---|
| | Percent Families Producing for Consumption | Percent Families Not Consuming | Percent Families Producing for Consumption | Percent Families Not Consuming |
| 0[1] | 45% | 29% | 9% | 42% |
| 1 | 22% | 36% | 22% | 28% |
| 2 | 12% | 24% | 31% | 19% |
| 3 | 9% | 5% | 25% | 8% |
| 4 | -- | 6% | 9% | 3% |
| 5 | -- | -- | 4% | -- |
| 6 | -- | -- | -- | -- |
| 7 | -- | -- | -- | -- |
| Total | 100% | 100% | 100% | 100% |

[1]This group must be carefully interpreted. For the case of production for household consumption it indicates that none of the food groups were grown or that all were purchased. For the case of families not consuming it indicates that none were not consumed or that all were consumed.

Source: 1973 PIMA Consumer Surveys

Table 4.17 Total Monthly Purchased Food Expenditures as a Percentage of Total Cash Income by Per Capita Income Groups of Urban and Rural Households Studied in Naranjo and Puriscal Counties[1]

| Location of Consuming Household | Percentage of Monthly Cash Income Spent on Purchased Food By All Families in Each Per Capita Income Group | | | | | | |
|---|---|---|---|---|---|---|---|
| | $1-$49 | $50-$99 | $100-$149 | $150-$299 | $300-%599 | $600 and above | Weighted Average Across All Income Groups |
| Naranjo | | | | | | | |
| Urban Areas | 61% | 67% | 52% | 47% | 38% | [2] | 48% |
| Rural Areas (Nucleated and dispersed) | 63% | 54% | 53% | 38% | 26% | | 46% |
| Puriscal | | | | | | | |
| Urban Areas | [2] | 63% | 53% | 49% | 31% | 26% | 45% |
| Rural Areas (Nucleated and dispersed) | 59% | 54% | 48% | 38% | [2] | [2] | 50% |
| San Jose Metropolitan Area[3] (July 1971) | $1 - $149 | | | $150-$299 | $300-$599 | $600 and above | |
| | 54% | | | 44% | 34% | 22% | 41% |

[1]Calculations are made by summing expenditures and income data over all households and then dividing (i.e., $\frac{\text{Expenditures}}{\text{Income}}$ for each per capita income group.

[2]No observations.

[3]These estimates by PIMA based on data from the Cespedes study are not exactly comparable to the Naranjo and Puriscal data but are good points of reference.

Source: 1973 PIMA Consumer Surveys

"monthly purchased food expenditures as a percentage of total cash income." For general comparative purposes, also included in the table are estimates of reasonably similar relationships among middle income San Jose Metropolitan Area consumers in 1971. They are similar because these families purchase all food and have little income in kind. Hence, the figures represent purchased food as a percentage of cash income. The time period is different (by three years), but these are the only comparative statistics available.

Family expenditure on purchased food as a percentage of total family cash income range between 45 and 50 percent for urban and rural consumers of both counties. There is internal consistency (with the exception of two lowest groups in Naranjo) in that lower income groups spend progressively larger portions of their income for food. And if the data from 1971 on consumers in San Jose are still valid, it appears that purchased food costs as a percentage of income are some five to ten percent higher in Naranjo and Puriscal counties, as compared to San Jose. Recall, however, that average cash incomes in both counties are estimated to be substantially lower than in the San Jose area. Naranjo and Puriscal households studied are therefore more comparable to the lower income groups in San Jose, and not to averages across all income groups. Comparing these, families appear to face similar food costs-income relationships.

Note that residents in rural areas of both counties spend on purchased food relatively equal portions of their cash income. Yet their purchased food baskets are not directly comparable to urban ones, because rural families produce varying amounts of certain products for home consumption which, together with purchased items, form a complete food supply. Notwithstanding this, purchased food and related marketing costs are significantly more important for rural households in the two counties (and in most areas of rural Costa Rica) than previous casual empirical judgments have indicated. The data are not adequate to strongly conclude that rural families may be worse off (not better, as it is generally thought) than urban ones from a cost and availability-of-food-supply perspective. They do indicate the importance of further specific research to better understand purchased product and related marketing costs as elements of the rural food supply.

A final performance characteristic for consumers and the overall food distribution subsystem concerns the nutritional adequacy of available food supplies. While the data from the consumer surveys do not permit specific nutritional considerations, they do indicate important relationships. First, incomes are lower in the rural areas of both counties and this has strong nutritional implications, as shown by the absolute amount of food purchased by those households which provide no farm perquisites (column 2 of Table 4.15) being substantially lower than in urban areas,

especially for Naranjo County. This suggests lower quantities of food consumed in rural areas and supports results of a detailed nutritional study done in rural areas of San Ramon County. (San Ramon is perhaps in between Puriscal and Naranjo in its agriculture. It produces primarily coffee, although less, relatively speaking, than Naranjo.)[1] It found calorie deficiencies to be a greater nutritional problem than protein deficiencies among rural preschool children. In diets of over 70 percent of the children studied, by adding adequate amounts of sugar and oil, or by simply increasing the quantity of all products consumed, adequate amounts of both calories and proteins could be present for normal growth.

A second general nutritional relationship is shown in Table 4.16. In Puriscal County a larger percentage (42 percent as compared to 29 percent for Naranjo) of rural families have items from all the food groups studied in their diets. Likewise, fewer families in Puriscal are missing one or two of the groups; and this is in spite of lower cash incomes in the county, as compared to Naranjo. It is hypothesized that this results from the higher percentage of those employed in agriculture in Puriscal being self-employed and owning and/or operating a farm. In Naranjo, more are agricultural laborers on big coffee farms

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[1]Vitor Valverde et al., Evaluacion Nutricional del Canton de San Ramon, Costa Rica (San Jose: Facultad de Medicina, Universidad de Costa Rica, 1974), pp. 27-29.

and apparently do not have the opportunity to raise more of their own food supplies.

This concludes the analysis of food quantities consumed from various sources and shows the high degree of market participation by both urban and rural consumers. In these two counties (and probably in most rural counties in Costa Rica), purchased food and associated marketing costs are as important to general welfare, if not more important, than in major metropolitan areas of the county.

### 4.42 Location of Food Purchases

The PIMA Consumer Surveys also collected information on the actual location of urban and rural household food group purchases. Data of this nature, especially regarding rural area consumer behavior, is useful in helping to predict reaction to proposed changes in the distribution subsystem. It is also a source of cross consistency checks for the retail survey of volume of trade flows by alternative outlets. Results are shown in Table 4.18, and in the lower part of the table are comparative statistics derived from the retailer survey on the relative share of sales by retail location (from Tables 4.10 and 4.11).

Rural consumers obtain almost all of their purchased supply of meat and fruits and vegetables in the county seats, either in the public markets or in stores located in the CBD's. At least one-half, if not more, of most other items are purchased in rural stores or from other

Table 4.18 Percentage of Naranjo and Puriscal County Family Food Purchases Spent at Different Retail Outlets by Food Product Groups

| Area of County and Food Product Group | Percentage Monthly Purchases in Market | | Percentage Monthly Purchases in CBD | | Percentage Monthly Purchases in Urban Neighborhood | | Percentage Monthly Purchases in Rural Stores[1/] | |
|---|---|---|---|---|---|---|---|---|
| | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal |
| County Seat Purchases of: | | | | | | | | |
| Milk | --- | --- | 94 | 91 | 6 | 9 | --- | --- |
| Eggs | --- | --- | 64 | 43 | 36 | 57 | --- | --- |
| Fruit and Vegetables | 98 | 94 | 1 | 6 | 1 | --- | --- | --- |
| Meats | 92 | 5 | 8 | 95 | --- | --- | --- | --- |
| Grains | 3 | 7 | 85 | 70 | 11 | 23 | --- | --- |
| Processed Foods | 2 | 2 | 73 | 73 | 25 | 25 | --- | --- |
| Urban Total | 33 | 15 | 55 | 67 | 12 | 18 | --- | --- |
| Rural Area Purchases of: | | | | | | | | |
| Milk | --- | --- | 7 | 11 | --- | --- | 93 | 89 |
| Eggs | 3 | --- | 4 | 3 | --- | --- | 93 | 65 |
| Fruit and Vegetables | 88 | 93 | 2 | --- | --- | --- | 10 | 7 |
| Meats | 88 | 4 | --- | 82 | --- | --- | 12 | 14 |
| Grains | 2 | 9 | 56 | 59 | --- | --- | 42 | 32 |
| Processed Foods | 3 | 4 | 36 | 37 | --- | --- | 61 | 59 |
| Rural Total | 22 | 11 | 32 | 47 | --- | --- | 46 | 42 |
| Total County Purchases of: | | | | | | | | |
| Milk | --- | --- | 51 | 40 | 3 | 3 | 46 | 56 |
| Eggs | 1 | --- | 35 | 39 | 20 | 28 | 44 | 33 |
| Fruit and Vegetables | 94 | 94 | 1 | 2 | 1 | --- | 4 | 4 |
| Meats | 90 | 3 | 3 | 85 | 1 | --- | 6 | 12 |
| Grains | 2 | 8 | 66 | 61 | 4 | 4 | 28 | 27 |
| Processed Foods | 2 | 4 | 48 | 42 | 9 | 4 | 41 | 49 |
| County Total | 26 | 11 | 41 | 51 | 5 | 4 | 28 | 34 |
| Relative Share Food Sales by Retailer Location | 16 | 16 | 42 | 38 | 6 | 3 | 36 | 43 |

[1] This category also includes some purchases by rural consumers of milk and eggs from local neighbors and family relations.

Source: 1973 FIMA Consumer Survey on Naranjo and Puriscal Counties.

rural households directly. This latter phenomenon was only observed for milk and eggs, and it did not appear to be a stable pattern. Purchases were made from close neighbors and relatives when they had extra quantities of eggs and/or milk to sell. Other times households with excess supplies of milk and eggs would sell them to nearby grocery stores which would, in turn, sell them to local consumers. In this sense some rural stores serve as a sort of horizontal exchange institution for a local area. Family ties are, of course, strong institutions in rural areas; and these supply relationships for milk and eggs did appear more stable.

In the county seats, consumers tend to use the public markets for purchases of meats and fruits and vegetables. On the basis of field observations, it appears that the importance of meat purchases in the Puriscal market are underestimated, although it is consistent that the meat stores in the Puriscal CBD are more important than those in the market.

Comparing the county totals from the consumer survey with those of the retail one shows some disagreement, although market shares indicated for different outlets are generally similar.[1] In terms of total county food sales, the consumer surveys show rural stores are still quite

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[1]Note that the market shares from the retailer surveys shown at the bottom of Table 4.18 are the net of beverage and liquor sales, in order to make the totals more comparable to consumer study ones.

important, although slightly less than indicated by the retailer surveys. The public markets are likewise less important than the group of CBD's stores, although the Naranjo market share shows up more important than in the retailer survey. The shares of county seat neighborhood stores are quite similar in both surveys.

It is likely that the inconsistencies in market shares between the two surveys are primarily explained by underestimation in the retailer survey of the volume of relative purchases by retailer/wholesalers in Puriscal and by fruit and vegetable market stall operators in the Naranjo public market. Increasing both of these would make the relative shares of sales indicated by the retailer survey more similar to consumer study results. For purposes of future studies, the technique used in the retailer survey appears to give reasonable results, but special care is necessary in surveying the small number of relatively large outlets, such as the retailer/wholesalers. This survey is easier and more economical to carry out, compared to the consumer survey. It can also be easily hand-tabulated, whereas the consumer survey is quite complex and almost certainly requires a computer to process the detailed information it identifies. Consequently it warrants further refinement to develop a research tool for easily identifying trade flows and relative market shares in rural areas of developing countries.

Given the market shares of the various retail outlets, an important question is how these will change over time. There is no time series data available in Costa Rica, or in most other developing countries. One indicator, available from the cross section consumer behavior data, can be obtained by examining how income levels among consumers influence the location of purchases. Such a cross tabulation for consumers in rural areas of both counties is shown in Table 4.19. Results are inconclusive, however, since higher income households purchase large quantities of meat and fruits and vegetables. The percentage of all foods purchased in rural-area stores does appear to decrease (to a certain point) as income increases. Yet this apparent decrease in the importance of rural purchases could be a function of higher income groups purchasing more perishable items which are only sold in county seat outlets. With increased income, their market basket changes and the cross-tabulation shows an apparent decrease in the share of it purcahsed in rural areas. An analysis of a constant market basket across income groups might show a different share for rural outlets.

This latter cross-tabulation was also done for the processed food group, since it is the most important purchase in rural areas. It is shown in Table 4.20 and does indicate a moderate decline in the importance of rural outlets as household per capita income increases. It appears that in Puriscal there is a strong decline from

Table 4.19 The Percentage of Naranjo and Puriscal Rural Consumers' Food Purchases in Alternative Retail Outlet Locations by Percapita Income Groups.

| Rural Area Purchases of All Food Groups by Percapita Income Groups | Percentage of All Monthly Purchases in Market | | Percentage of All Monthly Purchases in CBD Stores | | Percentage of All Monthly Purchases in Urban Neighborhood | | Percentage of All Monthly Purchases in Rural Area Stores 1/ | |
|---|---|---|---|---|---|---|---|---|
| | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal |
| Monthly Family Per Capita Income Groups: | | | | | | | | |
| $1-$49 (Colones) | 12 | 12 | 30 | 34 | 0 | 0 | 58 | 53 |
| $50-$99 (Colones) | 18 | 13 | 28 | 49 | 0 | 0 | 54 | 39 |
| $100-$149 (Colones) | 24 | 12 | 38 | 46 | 0 | 0 | 38 | 41 |
| $150-$299 (Colones) | 28 | 6 | 37 | 65 | 0 | 0 | 37 | 29 |
| $300-$599 (Colones) | 28 | N.O. 2/ | 21 | N.O. 2/ | 0 | 0 | 51 | N.O. 2/ |
| Total--All Income Groups | 22% | 11% | 32% | 47% | 0% | 0% | 46% | 42% |

1/ This category also includes some purchases of milk and eggs from local neighbors and family relatives

2/ No observations were made for these income groups.

Source: 1973 PIMA Consumer Survey.

Table 4.20 The Percentage of Naranjo and Puriscal Rural Consumers' Purchases of Processed Food Items in Alternative Retail Outlet Locations by Percapita Income Groups.

| Rural Area Purchases of All Food Groups by Percapita Income Groups | Percentage of All Monthly Purchases in Market | | Percentage of All Monthly Purchases in CBD Stores | | Percentage of All Monthly Purchases in Urban Neighborhood | | Percentage of All Monthly Purchases in Rural Area Stores 1/ | |
|---|---|---|---|---|---|---|---|---|
| | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal |
| Monthly Family Per Capita Income Groups: | | | | | | | | |
| $1-$49 (Colones) | 0 | .7 | 44 | 30 | 0 | 0 | 56 | 63 |
| $50-$99 (Colones) | 0 | 11 | 34 | 38 | 0 | 0 | 66 | 49 |
| $100-$149 (Colones) | 14 | 0 | 42 | 48 | 0 | 0 | 43 | 52 |
| $150-$299 (Colones) | 0 | 0 | 53 | 85 | 0 | 0 | 47 | 15 |
| $300-$599 (Colones) | 8 | N.O. 2/ | 53 | N.O. 2/ | 0 | 0 | 38 | N.O. 2/ |
| Total--All Income Groups | 3% | 4% | 36% | 37% | 0% | 0% | 61% | 59% |

1/ This category also includes some purchases of milk and eggs from local neighbors and family relatives.

2/ No observations were made for these income groups.

Source: 1973 PIMA Consumer Survey.

the third to the fourth income group; this is to be interpreted with care, however, since there are only 9 and 11 observations in the last two cells, as compared to 27 and 37 in the first two. Recall also that an estimated 45 percent of the rural Naranjo, and 76 percent of the rural Puriscal populations are in the lowest per capita income groups. This explains why the totals for all income groups are so heavily weighted towards the percentages for the lowest group.

In conclusion, the consumer purchase location data corroborate the market share relationships found in the retailer survey. Rural stores handle a surprisingly large share of the retail market, supplying over fifty percent of all the purchased food of the lowest income rural consumers. County seat public markets are of overall minor importance, although this varies by product. The few large grocery stores in the CBD's of the counties are major and are probably the outlets of the future, although the evidence available does not show strongly that increased incomes would rapidly shift patronage patterns away from rural stores. Obviously there are many other variables influencing food consumption habits in these counties, and we will examine some of these in the following sections.

### 4.43 Frequency of Purchase and Transport Costs

Information on the frequency of purchases of the different food groups is presented in Table 4.21. Consumers in urban areas purchase a majority of perishables

Table 4.21 The Frequency of Purchase of Selected Food Groups by Naranjo and Puriscal County Consumers

| Area of County and Food Product Group | Percentage of Product Purchased Weekly | | Percentage of Product Purchased BiWeekly | | Percentage of Product Purchased Monthly | | Percentage of Product Purchased Daily | | Percentage of Product Purchased 2 and 3 Times Weekly | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal |
| County Seat Purchases: | | | | | | | | | | |
| Bread | 0 | 0 | 0 | 0 | 0 | 0 | 99 | 99 | 1 | 1 |
| Milk | 3 | 2 | 0 | 0 | 0 | 0 | 97 | 88 | 0 | 10 |
| Eggs | 29 | 40 | 1 | 3 | 1 | 0 | 66 | 48 | 3 | 9 |
| Fruits and Vegetables | 12 | 27 | 0 | 3 | 0 | 0 | 77 | 66 | 11 | 4 |
| Meats | 18 | 30 | 0 | 3 | 0 | 0 | 61 | 63 | 21 | 0 |
| Grains | 68 | 67 | 11 | 13 | 0 | 4 | 20 | 14 | 1 | 1 |
| Processed Foods | 68 | 75 | 10 | 11 | 1 | 1 | 21 | 13 | 0 | 0 |
| Urban Total | 36% | 45% | 5% | 6% | -- | 1% | 54% | 44% | 5% | 3% |
| Rural Area Purchases: | | | | | | | | | | |
| Bread | 13 | 11 | 0 | 0 | 0 | 0 | 85 | 78 | 2 | 11 |
| Milk | 18 | 22 | 0 | 3 | 0 | 0 | 82 | 69 | 0 | 6 |
| Eggs | 26 | 23 | 1 | 0 | 0 | 0 | 52 | 72 | 21 | 5 |
| Fruits and Vegetables | 82 | 85 | 1 | 0 | 0 | 0 | 14 | 6 | 2 | 9 |
| Meats | 80 | 63 | 2 | 1 | 0 | 1 | 10 | 15 | 8 | 20 |
| Grains | 94 | 94 | 1 | 2 | 1 | 0 | 2 | 3 | 2 | 1 |
| Processed Foods | 90 | 86 | 0 | 2 | 1 | 1 | 8 | 11 | 1 | 1 |
| Rural Total | 76% | 73% | 1% | 2% | 1% | 1% | 20% | 19% | 2% | 5% |

Source: 1973 PIMA Consumer Survey.

on a daily or two- or three-times-a-week basis. Over half of their purchases of grains and processed items are done weekly. There are no monetary transport costs associated with any of these shopping trips, since everyone simply walks to the neighborhood or downtown stores.

Rural area trip patterns are quite similar for the two counties and show weekly shopping as dominant. This is to be expected because there are significant time and monetary costs associated with trips to the county seat. It was not necessarily expected, however, to find that almost all rural outlet grain and processed-item purchases also done on a weekly basis. A common explanation for food purchases in small, local grocery stores is that consumers need to make frequent purchases due to limited budgets and food storage capabilities. This does not appear to be the case for a majority of rural consumers' purchases (grain and processed items) in Naranjo and Puriscal. Bread, milk, and eggs are primarily purchased in daily trips to local stores, but these are not the major purchases in rural family market baskets.

Since most rural consumers in both counties do not own private forms of motorized transportation, public bus fares are the primary cash cost of purchasing in county seat towns. As a rule, someone from a majority of the rural households visits the county seat weekly. Assuming that the only purpose of such trips is to purchase food, the average rural household in Naranjo spends on bus fares

approximately 10 percent of the value of monthly county seat food purchases. Puriscal County is larger, and costs are even greater; fares represent over 18 percent of purchases. Obviously, not all these costs ought to be charged to food purchases because most trips to the county seat are multi-purpose. Unfortunately, there was not adequate coverage of these other purposes to enable a better understanding of overall justification for trips to county seats. Nonetheless, these relatively high costs in cash outlay, as well as in terms of opportunity costs of time required to travel to the county seat, help to explain why rural consumers have such a strong preference for local convenience in food shopping.

### 4.44 Reasons for Outlet Patronage

Expressed reasons why consumers purchase in given stores is an important dimension of behavior still unexamined. Because such behavior patterns vary by groups of products purchased, the consumer surveys collected information on each product group. Tables 4.22 and 4.23 show survey responses for purchases of processed food items by rural (nucleated and dispersed) households in the two counties. Only rural consumers are shown since a major issue of concern is why rural stores are so important. Only processed item purchases are included as they are the most important of the food groups in rural market baskets and are the most important items purchased in rural stores.

Table 4.22 Survey Responses of 118 Rural Naranjo Households: Reasons for Outlet Patronage of Weekly and Daily Purchases of Processed Food Items

| | Number of Households Expressing Patronage Reasons in Respective Outlets | | | | | |
|---|---|---|---|---|---|---|
| Reasons for Outlet Patronage--Weekly Purchase of Processed Food Items | Rural Area Stores | County Seat Market | County Seat CBD Stores | County Seat CNP Stores | Total | |
| Closer, More Convenient | 26 | 0 | 0 | 0 | 26 | (23%) |
| Better Quality Products | 1 | 2 | 3 | 0 | 6 | (5%) |
| Lower Product Prices | 9 | 0 | 21 | 15 | 45 | (40%) |
| Better Retailer Services *Includes Home Delivery | 2 | 1 | 14 | 1 | 18 | (16%) |
| Possible to Buy on Credit | 14 | 0 | 2 | 0 | 16 | (14%) |
| Only Perceived Place Available | 0 | 0 | 1 | 0 | 1 | (1%) |
| TOTAL Number of Households | 52 | 3 | 41 | 16 | 112 | (100%) |
| Reasons for Outlet Patronage--Daily Family Purchase of Processed Food Items | | | | | | |
| Closer, More Convenient | 3 | 0 | 0 | 0 | 3 | (50%) |
| Better Quality Products | 0 | 0 | 0 | 0 | 0 | (0%) |
| Lower Product Prices | 2 | 0 | 1 | 0 | 3 | (50%) |
| Better Retailer Services | 0 | 0 | 0 | 0 | 0 | (0%) |
| Possible to Buy on Credit | 0 | 0 | 0 | 0 | 0 | (0%) |
| Only Perceived Place Available | 0 | 0 | 0 | 0 | 0 | (0%) |
| TOTAL Number of Households | 5 | 0 | 1 | 0 | 6 | (100%) |

Source: 1973 PIMA Consumer Surveys.

Table 4.23 Survey Responses of 78 Rural Puriscal Households: Reasons for Outlet Patronage of Weekly and Daily Purchases of Processed Food Items

| | Number of Households Expressing Patronage Reasons in Respective Outlets | | | | | |
|---|---|---|---|---|---|---|
| Reasons for Outlet Patronage--Weekly Purchases of Processed Food Items | Rural Area Stores | County Seat Market | County Seat CBD Stores | County Seat CNP Stores | Total | |
| Closer, More Convenient | 23 | 1 | 0 | 0 | 24 | (34%) |
| Better Quality Products | 0 | 1 | 2 | 0 | 3 | (4%) |
| Lower Product Prices | 2 | 1 | 5 | 16 | 24 | (34%) |
| Better Retailer Services | 1 | 0 | 2 | 1 | 4 | (6%) |
| Possible to Buy on Credit | 11 | 0 | 2 | 0 | 13 | (18%) |
| Only Perceived Place Available | 3 | 0 | 0 | 0 | 3 | (4%) |
| TOTAL Number of Households | 40 | 3 | 11 | 17 | 71 | (100%) |
| Reasons for Outlet Patronage--Daily Family Purchases of Processed Food Items | | | | | | |
| Closer, More Convenient | 6 | 0 | 0 | 0 | 6 | (86%) |
| Better Quality Products | 1 | 0 | 0 | 0 | 1 | (14%) |
| Lower Product Prices | 0 | 0 | 0 | 0 | 0 | (0%) |
| Better Retailer Services | 0 | 0 | 0 | 0 | 0 | (0%) |
| Possible to Buy on Credit | 0 | 0 | 0 | 0 | 0 | (0%) |
| Only Perceived Place Available | 0 | 0 | 0 | 0 | 0 | (0%) |
| TOTAL Number of Households | 7 | 0 | 0 | 0 | 7 | (100%) |

Source: 1973 PIMA Consumer Surveys

It also makes little sense to look at store patronage reasons for meat, and fruits and vegetable purchases when they are only available in the county seats.

In both counties the availability of lower prices is the single most important attraction in outlet patronage and draws most consumers to stores located in the CBD's of their county seats. The CNP (State Stores) outlets appear to Puriscal consumers as the best price location, whereas the wholesale-retailers in Naranjo were strong price competitors for the CNP outlet. Store location (closer, more convenient) is the second most important overall factor and is the principal reason why rural stores are preferred in both weekly and daily purchases of these items. Credit availability is also important, particularly as a reason for purchases in rural stores. It is interesting to note that CBD stores in Naranjo are also chosen for their better service, expecially home delivery to rural areas. Some of the retailer-wholesalers in Naranjo are quite progressive in providing new services and consumers seem to respond.

In general, these data are quite helpful in understanding rural consumer behavior. Clearly there is a strong preference for store locations within a relatively convenient walking distance. There is also a demand for purchases on credit, although, contrary to coventional belief, it is not the overriding reason for rural store patronage. In fact, data in Table 4.24 show only about 20 percent or less of all rural consumers in these counties making all

Table 4.24 Indicators of the Importance of Consumer Credit Availability at Retail Outlets Among Consumer Households Surveyed in Naranjo and Puriscal Counties.

| County and Area of County | Household Buying Preference | | | Household Actual Buying Practice | | | Importance of Credit Availability in Choosing an Outlet | |
|---|---|---|---|---|---|---|---|---|
| | On Credit | Cash | No Preference | On Credit | Cash | Cash and Credit | Yes Credit is Important | No Credit Not Important |
| Naranjo | | | | | | | | |
| Urban Area-- (County Seat) | 17% | 83% | -- | 15% | 70% | 15% | 36% | 64% |
| Rural Area-- (Nucleated and Dispersed) | 10% | 88% | 2% | 20% | 64% | 16% | 45% | 55% |
| Puriscal | | | | | | | | |
| Urban Area-- (County Seat) | 12% | 88% | -- | 12% | 81% | 7% | 21% | 79% |
| Rural Area-- (Nucleated and Dispersed) | 16% | 84% | -- | 17% | 74% | 10% | 40% | 60% |

Source: 1973 PIMA Consumer Surveys.

purchases only on credit and another 10 to 15 percent buying some items this way. And the option of being able to make purchases on credit is important to less than half of all rural households.

4.45 Consumer Good and Agricultural Input Purchases

Families in these two counties purchase a wide array of consumer goods in addition to food. The surveys attempted to measure the location of some of these purchases, since there are important relationships between marketing practices and infrastructure needs of food and non-food businesses. Questions were designed to discover where normal--i.e., a majority of the household's standard purchases of given items were made. Results (Table 4.25) indicate the different geographical locations and other related infrastructural road systems of the two counties influence purchasing habits. Puriscal County is connected by an all-weather highway and inter-county bus services to San Jose and another small rural county, Parrita. A majority of the roads to the townships of Puriscal only converge to the county seat and do not connect with other counties except via the town of Puriscal. Hence, rural Puriscal consumers can only come to their county seat, and to San Jose, to purchase consumer good items like clothing and shoes, as well as agricultural inputs. A small percentage of farmers living much closer to Parrita go there for agricultural inputs, as the type of agriculture of their area

Table 4.25 Location of Purchase of Selected Consumer Goods and Agricultural Inputs by Urban and Rural Households in Naranjo and Puriscal Counties.

| Location of Normal Purchases by Various Households | Percentage of Households Making Normal Clothing Purchases | Percentage of Households Making Normal Shoe Purchases | Percentage of Households Making Normal Agricultural Input Purchases | Percentage of Households Making Cleaning, Health and Beauty Aid Item Purchases |
|---|---|---|---|---|
| Naranjo County--Urban Households[1] | | | | |
| Stores in CBD of County Seat | 86% | 82% | -- | 86% |
| Stores in Neighborhood of County Seat | -- | -- | -- | 14% |
| Stores in CBD of Contiguous Counties | 4% | 8% | -- | -- |
| Stores in San Jose Metropolitan Area | 10% | 10% | -- | -- |
| Urban Total | 100% | 100% | 0% | 100% |
| Naranjo County--Rural Households[2] | | | | |
| Stores in CBD of County Seat | 68% | 71% | 82% | 59% |
| Stores in Rural Area of County | -- | -- | -- | 41% |
| Stores in CBD of Contiguous Counties | 21% | 25% | 15% | -- |
| Stores in San Jose Metropolitan Area | 10% | 4% | 2% | -- |
| Rural Total | 100% | 100% | 100% | 100% |
| Puriscal County--Urban Households[1] | | | | |
| Stores in CBD of County Seat | 69% | 64% | -- | 74% |
| Stores in Neighborhood of County Seat | -- | -- | -- | 17% |
| Stores in CBD of Continguous Counties | -- | -- | -- | -- |
| Stores in San Jose Metropolitan Area | 31% | 36% | -- | 9% |
| Urban Total | 100% | 100% | 0% | 100% |
| Puriscal County--Rural Households[2] | | | | |
| Stores in CBD of County Seat | 96% | 99% | 95% | 48% |
| Stores in Rural Areas of County | -- | -- | -- | 52% |
| Stores in CBD of Contiguous Counties | -- | -- | 5% | -- |
| Stores in San Jose Metropolitan Area | 4% | 1% | -- | -- |
| Rural Total | 100% | 100% | 100% | 100% |

[1]Urban is defined as county-seat town population.

[2]Rural is defined as rest of county, nucleated and dispersed population.

Source: 1973 PIMA Consumer Surveys.

is better serviced there. (Parrita County and the southern part of Puriscal's second township are primarily lowland rice production areas.) Urban Puriscal consumers frequent San Jose more than their Naranjo counterparts primarily because the town is smaller and the variety of consumer goods is limited, compared to Naranjo. Many heads of households in Puriscal also work in San Jose.

In contrast, Naranjo County is well connected via all-weather roads and bus service to three contiguous counties with relatively large county seats and to San Jose. Many of its rural townships are likewise connected directly by road and bus service to contiguous county seats. They do not have to go through their own county seat to reach other ones. Hence, one-fifth to one-fourth of the rural households make a majority of their purchases of shoes, clothing, and agricultural inputs in contiguous county seats.

The data also show rural stores in both counties supplying about one-half of rural families with cleaning and health and beauty items, like soaps, toilet paper, dental cream, etc. These are items not covered in the consumer and retailer surveys and thus would increase the relative and absolute sales of rural stores.

## 4.5 Retailer and Wholesaler Behavior and Performance

Until now we have only examined in detail consumer behavior, given the available retailing units in each county. The purpose of the present section is to focus on how

retailers and/or wholesalers conduct business, relate to each other and, in general, influence the availability of marketing services and overall performance of rural subsystems.

### 4.51 Wholesale Suppliers for County Retailers

In order to clearly understand retailer conduct, let us first identify wholesaling organizations operating within each county and those located outside but which have immediate linkages with each. Recall from Table 4.9 there are three food retailer-wholesalers and one wholesaler located in the county seat of Naranjo and two retailer-wholesalers in Puriscal. The average monthly purchases for purposes of wholesale sales by each of the four in Naranjo are approximately $120,000 colones, although as averages these hide considerable differences. Two of the three retailer-wholesalers only do approximately 30 percent of their business in wholesale sales, while the other does 70 percent. And his wholesale volume is about three times larger than the other two retailer-wholesalers. So there are really only two important wholesale suppliers within the county of Naranjo, and one of these is considerably larger than the other (at least twice).

The retailer-wholesalers located in Puriscal handle an average of $60,000 colones per month in purchases for wholesale activities and are relatively equal in importance.

These suppliers are not the only procurement sources for local retailers. There are two additional general types

of supply lines: one includes a local farm-assembler and sometimes processor link who channels locally produced commodities directly to retailers and/or wholesalers. The second type includes a number of different marketing agents physically located outside each county who are either visited by Naranjo and Puriscal merchants or send their own sales agents and distribution trucks to sell to them. The operating procedures and relative importance of these various wholesale supplies will be discussed in Section 4.53.

### 4.52 Credit Extension, Prices, and Other Services

One available indicator of different retailers' conduct is the data collected in the PIMA consumer surveys on reasons for store patronage. Earlier, in Tables 4.22 and 4.23, we observed rural households in both counties purchasing in rural stores primarily because they are more convenient and offer consumer credit. Public market outlets received almost no comments or preferences (for processed food purchases), while county seat CBD stores were chosen because of their lower prices and better services. CNP outlets in both counties were selected almost exclusively because of their lower prices.

Tables 4.26 and 4.27 show somewhat similar patterns of urban consumer response to different dimensions of retail service. Like their rural counterparts, county seat neighborhood stores provide convenience and some consumer

Table 4.26 Survey Responses of 67 Urban Naranjo Households: Reasons for Outlet Patronage of Weekly and Daily Purchases of Processed Food Items

| | Number of Households Expressing Patronage Reasons in Respective Outlets | | | | | |
|---|---|---|---|---|---|---|
| Reasons for Outlet Patronage--Weekly Purchase of Processed Food Items | County Seat Neighborhood Store | County Seat Market | County Seat CBD Stores | County Seat CNP Stores | Total | |
| Closer, More Convenient | 2 | 0 | 6 | 0 | 8 | (14%) |
| Better Quality Products | 2 | 0 | 1 | 0 | 3 | (5%) |
| Lower Product Prices | 1 | 0 | 10 | 12 | 23 | (40%) |
| Better Retailer Services *Includes Home Delivery | 0 | 1 | 2 | 0 | 3 | (5%) |
| Possible to Buy on Credit | 5 | 0 | 15 | 0 | 20 | (35%) |
| Only Perceived Place Available | 0 | 0 | 0 | 0 | 0 | (0%) |
| TOTAL Number of Households | 10 | 1 | 34 | 12 | 57 | (100%) |
| Reasons for Outlet Patronage--Daily Family Purchase of Processed Food Items | | | | | | |
| Closer, More Convenient | 3 | 1 | 1 | 0 | 5 | (50%) |
| Better Quality Products | 0 | 0 | 0 | 0 | 0 | (0%) |
| Lower Product Prices | 0 | 0 | 3 | 2 | 5 | (50%) |
| Better Retailer Services | 0 | 0 | 0 | 0 | 0 | (0%) |
| Possible to Buy on Credit | 0 | 0 | 0 | 0 | 0 | (0%) |
| Only Perceived Place Available | 0 | 0 | 0 | 0 | 0 | (0%) |
| TOTAL Number of Households | 3 | 1 | 4 | 2 | 10 | (100%) |

Source: 1973 PIMA Consumer Surveys.

Table 4.27 Survey Responses of 36 Urban Puriscal Households: Reasons for Outlet Patronage of Weekly and Daily Purchases of Processed Food Items

| | Number of Households Expressing Patronage Reasons in Respective Outlets | | | | | |
|---|---|---|---|---|---|---|
| Reasons for Outlet Patronage--Weekly Purchase of Processed Food Items | County Seat Neighborhood Store | County Seat Market | County Seat CBD Stores | County Seat CNP Stores | Total | |
| Closer, More Convenient | 4 | 0 | 9 | 0 | 13 | (38%) |
| Better Quality Products | 0 | 0 | 0 | 0 | 0 | (0%) |
| Lower Product Prices | 0 | 0 | 3 | 14 | 17 | (50%) |
| Better Retailer Services | 0 | 1 | 0 | 0 | 1 | (3%) |
| Possible to Buy on Credit | 2 | 0 | 1 | 0 | 3 | (9%) |
| Only Perceived Place Available | 0 | 0 | 0 | 0 | 0 | (0%) |
| TOTAL Number of Households | 6 | 1 | 13 | 14 | 34 | (100%) |
| Reasons for Outlet Patronage--Daily Family Purchases of Processed Food Items | | | | | | |
| Closer, More Convenient | 0 | 0 | 0 | 0 | 0 | (0%) |
| Better Quality Products | 0 | 0 | 0 | 0 | 0 | (0%) |
| Lower Product Prices | 0 | 0 | 1 | 1 | 2 | (100%) |
| Better Retailer Services | 0 | 0 | 0 | 0 | 0 | (0%) |
| Possible to Buy on Credit | 0 | 0 | 0 | 0 | 0 | (0%) |
| Only Perceived Place Available | 0 | 0 | 0 | 0 | 0 | (0%) |
| TOTAL Number of Households | 0 | 0 | 1 | 1 | 2 | (100%) |

Source: 1973 PIMA Consumer Surveys.

credit. CBD outlets are selected because of lower prices, convenience, and their extension of credit (the latter is particularly true in Naranjo). CNP stores are also chosen by urban consumers almost exclusively because of their lower prices for processed and other items.[1]

In general, then, both urban and rural consumers favored larger volume outlets located in central business districts of both counties because of low prices and other service dimensions. They likewise cited rural and some neighborhood-located stores, for their more convenient locations and provision of short-term consumer credit.

Retailer practices of extending consumer credit are examined in Table 4.28 and, in general, are consistent with consumer behavior previously discussed. Over half of almost all stores in both counties provide consumer credit, but rarely for more than 30 to 50 percent of their sales. Outlets located in county seats tend to provide less and those in rural areas relatively more.

Levels of retail-wholesale credit extension are higher than in other county seat-located outlets because a majority of their wholesale sales to retailers are on credit. This is also shown by the longer term nature of

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[1]Outlet patronage reasons for consumers in these two counties have only been examined in detail for the processed food group. This is because reasons for purchasing meat and fruits and vegetables in the public markets are obvious: they are only sold here, with the exception of meat in Puriscal. And here consumers choose meat outlets in the CBD over those in the market because of higher quality products and better services.

Table 4.28 Provision of Consumer Credit by Food Merchants in Naranjo and Puriscal Counties

| Location and Type of Retail Outlet | Percent of Stores Selling on Credit | | Percent of Sales on Credit by These Stores | | Average Number of Days of Credit | |
|---|---|---|---|---|---|---|
| | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal |
| Public Markets (County Seat) | | | | | | |
| Grain and Processed Item Stalls | 100 | 41 | 38 | 19 | 14 | 18 |
| Fruit and Vegetable Stalls | 80 | 86 | 30 | 15 | 8 | 20 |
| Meat Stalls | 25 | -- | 50 | -- | 30 | -- |
| Fish Stall | --- | -- | -- | -- | -- | -- |
| Commercial Business District (County Seat) | | | | | | |
| Small Grocery Store | 67 | 67 | 10 | 20 | 12 | 20 |
| Small Grocery and Liquor Store | --- | -- | -- | --[1/] | -- | -- |
| Retail/Wholesale Grocery Stores | 100 | 100 | 53[1/] | 40[1/] | 30 | 45 |
| CNP (State) Store | --- | --- | -- | -- | -- | -- |
| Meat Store | --- | --- | -- | -- | -- | -- |
| Remaining Area of County Seat Town | | | | | | |
| Small Grocery Store | 100 | 67 | 30 | 25 | 14 | 25 |
| Small Grocery and Vegetable Store | --- | -- | -- | -- | -- | -- |
| Rural Area of County | | | | | | |
| Small Grocery Store | 92 | 89 | 65 | 50 | 13 | 15 |
| Small Grocery and Liquor Store | 87 | 87 | 53 | 37 | 15 | 17 |
| Meat Store | --- | 50 | -- | 50 | -- | 8 |

[1/] Both retail and wholesale sales included.
Source: 1973 PIMA Retailer Surveys in Naranjo and Puriscal.

their credit (30 to 45 days), whereas most other stores usually allow only one to two weeks to pay.

Virtually all retailers interviewed stated that they provide credit because their consumers are paid on a weekly or bi-weekly basis and do not have adequate cash balances to carry them through each pay period. This was especially true in rural areas of Naranjo, where a larger percentage of the economically active population is agricultural laborers and receive low absolute incomes. Some rural retailers also mentioned that farmers have much longer waiting periods for income and need credit in order to eat while waiting for harvest periods.

A small price study was also done in a number of outlets in each county, and in San Jose, in order to better determine differences among these and to examine the impact of existing prices on different consumer groups. We were particularly interested in the relative price levels facing consumers purchasing in rural stores. Thirteen items were either purchased and/or priced in each outlet during the second week of February in 1974. Neither meat nor a wide variety of other perishables were included, since the objective of the survey was to determine relative prices on items which rural consumers tend to purchase in rural stores. Because only 27 stores were visited in the two counties, the sample is relatively small. Yet retailers selected are highly representative: (a) both the supermarket and <u>almacen</u> visited in San Jose are members of corporate

retail chains; (b) all the CNP stores in the county have similar prices, although both were still sampled; (c) the two most important retailer-wholesalers in each county were sampled and their prices averaged; (d) only one public market stall in each county was included, since prices are generally quite competitive within these markets; (e) two neighborhood and six rural grocery stores were sampled in each county. And for the rural stores the distance factor was considered by sampling two stores located together some three to four kilometers from the county seats: two of them five to eight kilometers and two approximately 15 kilometers from each. Simple averages across these six outlets were then computed.

Results (Table 4.29) follow closely the consumer patronage responses regarding those outlets chosen because they offer lower prices. The CNP store in each county offers the lowest prices of all outlets for 12 of the 13 items included in the study. The retailer-wholesalers in each county seat appear to be good price competitors with the CNP stores: and since they carry a much wider line of items and have much better customer services than the CNP outlets, they easily gain a larger market share. It is interesting to note that they also appear to compete favorably with prices in the two larger volume outlets studied in San Jose.

The three types of smaller volume retail outlets included in the study (market, neighborhood, and rural

Table 4.29 Index of Relative Retail Prices for Selected Food Items in Different Outlets in San Jose, Naranjo, and Puriscal[4/]

| Food Items | San Jose Area | | Naranjo County | | | | | Puriscal County | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Almacen (1) | Super-market (1) | CNP Store (1) | Retailer/ Wholesaler (2) | Market Stall (1) | Neighbor-hood Outlets (2) | Rural Area Outlets (6) | CNP Store (1) | Retailer/ Wholesaler (2) | Market Stall (1) | Neighbor-hood Outlets (3) | Rural Area Outlets (6) |
| Yellow Corn | 100 | 127 | 100 | 122 | 133 | 133 | 140 | 100 | 118 | 122 | 122 | 129[3/] |
| Rice (Standard Quality) | 105 | 105 | 100 | 110 | 105 | 110 | 110 | 100 | 105 | 105 | 100 | 105 |
| Sugar | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Coffee | 105 | 105 | 100 | 103 | 105 | 105 | 105 | 100 | 100 | 100 | 102 | 105 |
| Salt | 100 | 100 | 100 | 100 | 100 | 100 | 105 | 100 | 100 | 113 | 108 | 110 |
| Pideos | 103 | 103 | 100 | 103 | 100 | 107 | 108[3/] | 100 | 100 | 107 | 107 | 107 |
| Margarine | 107 | 104 | 100 | 107 | 113 | 124 | 121 | 100 | 111 | 113 | 117 | 121 |
| Canned Tuna Fish | 100 | 100 | 100 | 104 | 104 | 111 | 107 | 100 | 102 | 104 | 104 | 108 |
| Lard | 100 | 100 | 100 | [2/] | [2/] | [2/] | [2/] | 100 | 105 | 105 | 105 | 105 |
| Eggs (Medium) | 100 | 100 | 100 | 100 | 100 | 113 | 100[3/] | 100 | [1/] | [1/] | 100 | 100[3/] |
| Potatoes | 114 | 121 | 104 | 100 | 100 | 100 | 125[3/] | 104 | 100 | 100 | 107 | 107[3/] |
| Onions | 109 | 105 | 100 | 114 | 127 | [1/] | 164[3/] | 100 | 109 | 127 | 136 | 118[3/] |
| Powdered milk | 120 | 120 | 100 | [2/] | [2/] | [2/] | [2/] | 100 | 120 | [1/] | 120 | 130[3/] |

[1/] Item not available at any stores in sample.
[2/] This item not included in sample of these stores.
[3/] Item not available at all stores in sample.
[4/] The lowest price among all outlets and locations equals 100.
Source: PIMA Price Study, 1974.

stores) all have higher prices, with rural area stores showing the highest relative levels for most items. From earlier analysis we also know that consumers with the lowest relative income tend to be more frequent users of these rural stores and hence are paying the highest prices of all consumers in the system. For these shoppers, however, the alternative of coming via rural bus to purchase in the lower price county seat outlets may be even less desireable. It implies a higher transportation and time cost, and for some who need it, consumer credit will not be available.

### 4.53 Retailer Procurement Practices and Related Problems

The type and quality of the services provided by wholesale suppliers is an important factor influencing the actual and potential level of prices and services which food retailers provide. The purpose of the present section is to examine supply relationships in both counties, attempting in the process to identify felt problems and barriers to improved performance among retailers being served.

In order to keep alternative supply sources in perspective, let us first develop a rough estimate of the value of that portion of the local food supply which does not enter commercial channels. Recall from section 4.4 that estimates were derived of the number of rural households producing different product groups for home consumption, but that no precise quantification was made of the actual

value of these farm perquisites. For present purposes of obtaining a reasonable estimate of this, it is possible to assume that the average monthly value of purchases (by food group) by those families purchasing for consumption provides an acceptable estimate of the value of food consumed by the average family home producing it. This probably overstates the total value of farm perquities, but in light of no alternative information source it permits a reasonable estimate of the relative importance of this portion of the food supply for the two counties.[1]

Using the above assumption, Table 4.30 shows the derived value of all food consumed from purchased and home-produced sources. In Naranjo the overall monthly value of farm perquisites represents an estimated 8 percent of total consumption, and in Puriscal some 24 percent. Resulting estimates of the weights of the five different general product groups in the typical food basket for each of the two counties are also shown: grains and processed items are by far the most important group, with meat and fruits and vegetables following.

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[1]There are two important reasons to expect that it overestimates: (1) those families purchasing for consumption tend to have higher incomes than those producing for consumption and, therefore, probably consume relatively more; (2) the nature of the one-visit, recall interview and the questions asked in the consumer surveys is such that families indicating that they produce for home consumption are assumed to produce all of what the family consumes of that product group. This is probably not the case during the entire year, particularly at periods further from harvest.

Table 4.30 Estimated Value of Total Monthly Consumption of Food from Purchased and Home Production Sources in Naranjo and Puriscal Counties

| Product Group | Naranjo | | | Puriscal | | |
|---|---|---|---|---|---|---|
| | Monthly Value of Farm Perquisites | Monthly Value of Purchases and Farm Perquisites | Percentage of Total | Monthly Value of Farm Perquisites | Monthly Value of Purchases and Farm Perquisites | Percentage of Total |
| Grains and Processed Food Items | $15,141 (6%) | $517,406 (100%) | 68 | $ 54,056 (24%) | $534,999 (100%) | 54 |
| Fresh and Processed Meat Products | --- (0%) | 97,303 (100%) | 13 | 11,168 (6%) | 196,335 (100%) | 20 |
| Eggs and Chickens | 19,526 (52%) | 37,846 (100%) | 5 | 13,261 (72%) | 18,517 (100%) | 2 |
| Milk and Cheese | 14,960 (40%) | 37,053 (100%) | 5 | 57,686 (83%) | 69,602 (100%) | 7 |
| Fruits and Vegetables | 11,559 (18%) | 63,456 (100%) | 8 | 96,013 (58%) | 167,086 (100%) | 17 |
| TOTALS | $61,186 (8%) | $753,064 (100%) | 100 | $232,176 (24%) | $986,539 (100%) | 100 |

Source: 1973 PIMA Consumer and Retail Surveys in Naranjo and Puriscal.

In order to learn the supply sources and channel flows of items in each of these food groups, questions were included in the retailer surveys to identify important supply patterns and standard operating procedures in procurement processes. These were tabulated, analyzed, and published in the PIMA case studies for Naranjo and Puriscal.[1] Channel maps showing consumer and retailer supply sources were constructed for each of the general product groups. Maps 4.2 and 4.3 show the aggregate relationship found across all products. These are drawn to scale; the size of the various circles indicates the relative share of the total monthly value of purchases handled by different retailers and wholesalers.[2] Three principal retail supply sources are identified: (1) wholesalers and retailer-wholesalers located in each county seat but, in turn, purchasing a majority of their supplies outside of them; (2) farmers and product assemblers who channel agricultural production from within each county directly to local

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[1]PIMA, Estudio Sobre el Mercadeo de Alimentos, la Remodelacion del Mercado Municipal y la Terminal de Autobuses en el Canton de Naranjo (San Jose, Costa Rica: IFAM, 1974), pp. 32-37. [Hereinafter referred to as The PIMA-Naranjo Feasibility Study.]

PIMA, Estudio Sobre el Mercadeo de Alimentos y la Remodelacion del Mercado Municipal en el Canton de Puriscal (San Jose, Costa Rica: IFAM, 1974), pp. 49-54. [Hereinafter referred to as The PIMA-Puriscal Feasibility Study.]

[2]The relative estimated value of farm perquisites is based on final consumer prices, whereas the estimates of relative shares of retailers and wholesalers is based on purchase and not sales prices. This introduces some comparison problems, although they are not considered serious for present purposes.

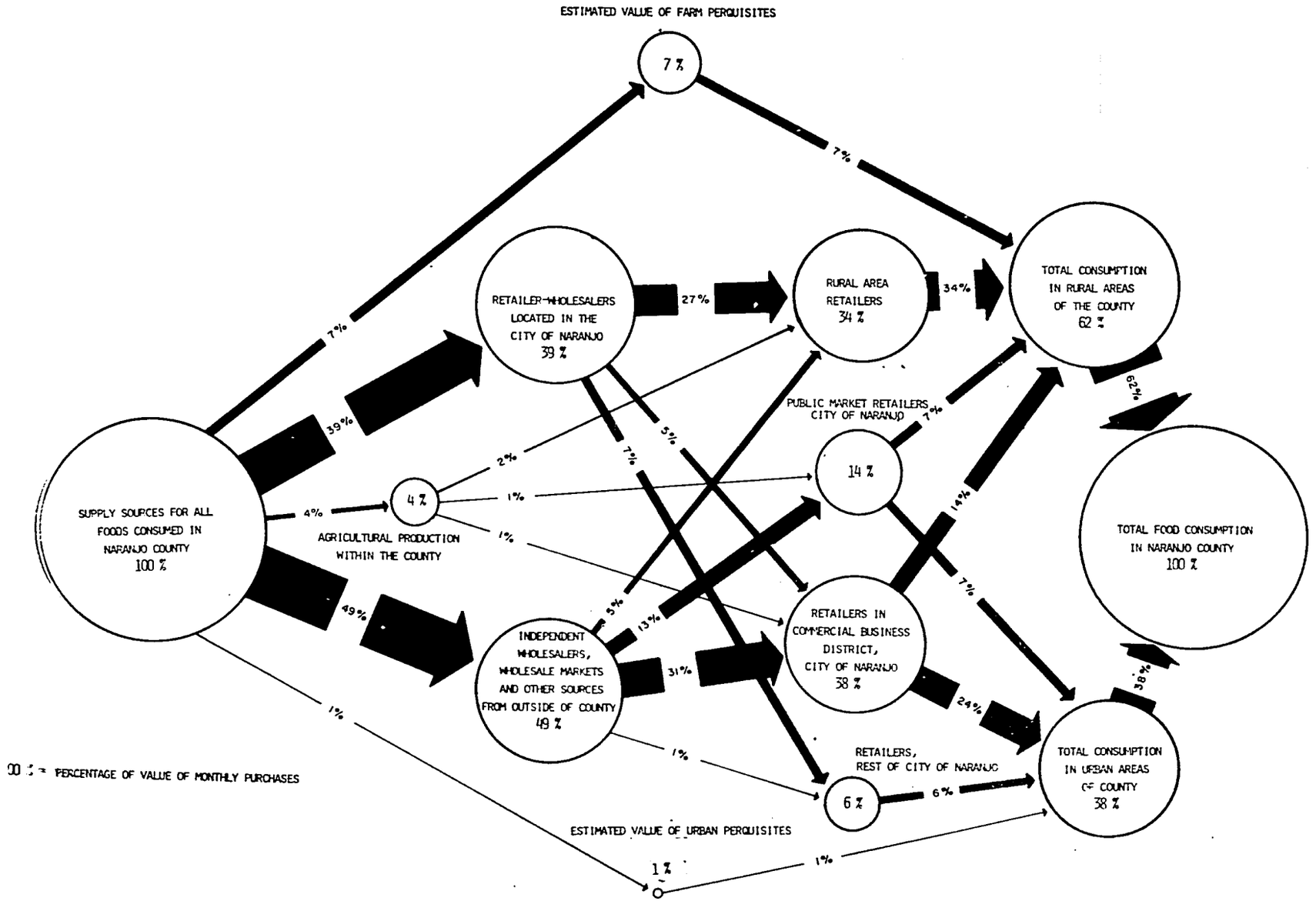
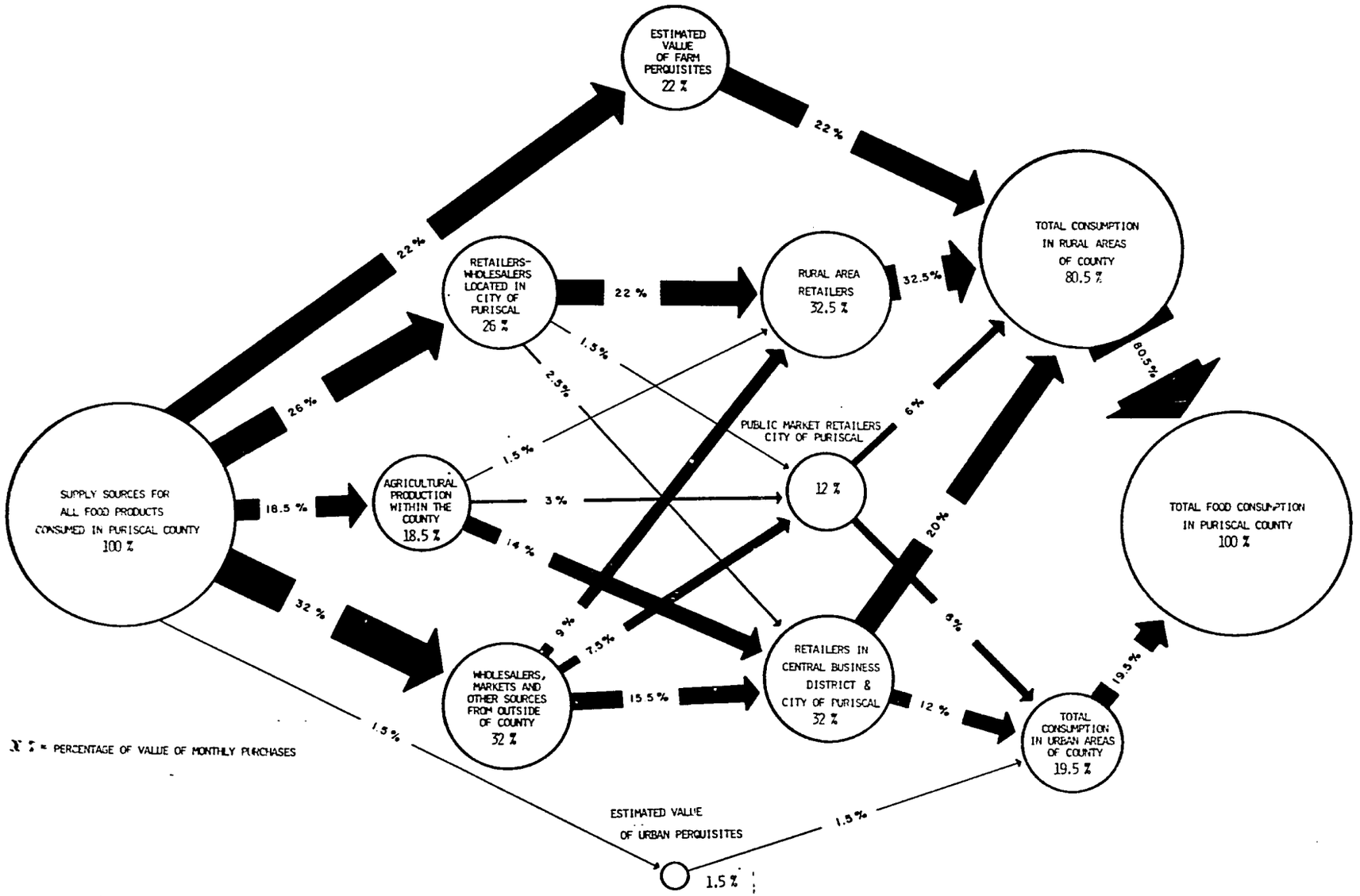



Fig. 4.2 Consumer and Retailer Supply Sources for all Foods: Naranjo County, 1973.




Map 4.3 Consumer and Retailer Supply Sources for all Foods: Puriscal County, 1973.

retailers and/or consumers; (3) various other wholesalers located outside each county.

Three key feastures illustrated by these maps, which will be discussed below, are (1) the relatively high overall dependence of each of the counties on outside food supply sources, (2) the relatively high dependence of smaller rural and urban retailers on supply services from within each county, and (3) the heavier dependence of public market and larger volume county seat retailers on sources of supply from outside each county.

Concerning the overall degree of dependence, even in more agriculturally diversified Puriscal County, less than half of all food consumed (urban and rural perquisites--23.5% + other local production marketed directly--18.5% = 42%) comes from the same county. And even here the local production channeled directly to retailers consists almost entirely of one product: some of the cattle raised by Puriscal farmers are sold to local meat store operators, are then processed in the municipal slaughter house, and are finally sold in the retail meat shops. In Naranjo, where agricultural specialization is more advanced, over 90 percent of the food supply comes via different marketing agents from other production areas of the country.

Hence, the local food consumption and marketing subsystems of these counties are closely associated with regional and national markets in the country. Related to this national market integration dimension is the minimal

role of public markets in the agricultural assembly process, both for local consumption and for trans-shipment to other consumption areas of the country.

For example, the Naranjo public market fulfills no assembly function: the small amount of locally produced vegetable products arriving there comes via one or two truck jobbers who specialize in buying from local farmers just enough to supply the needs of Naranjo and other nearby county seat public market sellers. And if they cannot meet their obligations from local supply, they buy in the San Jose market. At the same time there is a vegetable production area in the county that supplies the national market in San Jose: truckers acting as direct buyers, freighters, or as trucker-commission agents move a majority of these products directly from farms or nearby pickup points to it. This results, first because the farmers are relatively specialized and cannot afford to spend time selling small amounts of one or two products to retailers in local public markets. Second, given the relatively short distance to the San Jose market, once a product is loaded on a truck, it is normally less expensive to move the product directly to it. Likewise, San Jose is <u>the</u> only true national wholesale market, and even it can be a rather limited one. Moreover, because of the relatively under-developed system of marketing information, sales continue to be made on the basis of personal inspection. Both sellers and buyers thus prefer to be where the market

price is established and where they have some assurance of buying or selling realtively rapidly and at the most favorable national price available on that day.

In the other example of Puriscal County, some product assembly functions are still performed in the area nearby and surrounding the public market. Yet these locations have very little to do with directly supplying retailers located inside the market or local consumers. They serve mostly as convenient operating points for buyers moving products out of the county to major demand centers. There is a weekly cattle market held in the municipal stock yards located on the same street as the market. A small number of corn and panela truck buyers also show up once a week, on Saturday morning, parking in the streets around the market in order to purchase small quantities which farmers bring into town on horseback. These and other truck buyers also travel around the county buying corn and beans directly from larger farmers. Hence, the purchases made in Puriscal on market day tend to be only a small part of the total assembly process and tend to service the smaller producers located within horseback distance of Puriscal.

It is also illustrated in Maps 4.2 and 4.3 that rural retailers in both counties make well over a majority of their purchases from the wholesale supplies located in each county seat. About the only other supply source for them is the occasional direct manufactured food product distributor; and these usually only stop at a rural store

when it happens to be located along a road that must be traveled in order to arrive at another county seat. Small grocery stores in each county seat also purchase mainly from local suppliers.

In general, retailers of all types from urban and rural areas of these counties travel physically to wholesaler suppliers in order to select, inspect, and purchase merchandise. Whether or not these suppliers provide credit and transportation service varies by type of business and product line, and by the size of operation of the retailer.

In Naranjo each of the retailer-wholesaler outlets have their own trucks, while approximately 25 percent of the other grocery store operators and the public stall merchants, and less than 20 percent of the rural retailers have them to transport merchandise. Fortunately for the majority of the small rural and county seat outlets, however, the local retailer-wholesaler provides transport services at no additional charge, usually on the same day that the retailer comes to town to make his purchases. So only about 10 percent of the rural retailers must search out and pay for the transportation of their purchases back to their stores. The smaller scale public market and neighborhood outlets that go to San Jose to purchase usually have to arrange their own return freight transport.

Transportation in Puriscal is much more difficult, especially for the smaller rural outlets. Some of the

larger meat and grocery store owners and each of the retailer-wholesalers have their own trucks, but the latter provide very few transport services as part of their wholesale operation. They will occasionally deliver large orders to long-standing customers from rural areas and more generally to small stores in the county seat, but not to most rural outlets. And since only six percent of the rural retailers have their own vehicles, over 80 percent reported that they must seek out and pay for their own transportation.

Finally, it is shown in Maps 4.2 and 4.3 that public market stall operators and the larger volume outlets located in the central business districts of each county seat procure over half of their supplies outside the county. Fruit and vegetable stall operators must go to the San Jose wholesale market because only there can they find an adequate supply of the full line of products needed. And they are close enough to San Jose that time and transport costs are still manageable. Other, more distant public market retailers usually make informal contacts with suppliers who purchase a full line of fruits and vegetables in the San Jose market and deliver locally two or three times per week.

In fact, studies in San Isidro, Nicoya, and Limon identified these supply arrangements, and found a potential point of conflict between them and local small farmers

attempting to supply some of the same products.[1] For example, in San Isidro, local farmers would occasionally bring to the public market small amounts of four or five vegetable products which could be produced within the county. But the market vegetable retailers already had standing arrangements with trucker-suppliers to provide a full line of some 25 vegetable products. So occasional and relatively incomplete local supply was impractical for them, since they did not want to lose access to a consistent supply provided by the trucker. The only alternative for farmers was to locate on the sidewalks surrounding the market in the hope of selling directly to consumers. And their sales represented an excess supply, because market retailers had already arranged for an amount they expected to sell at going prices.

The retailer-wholesalers in each county seat (particularly the largest one in Naranjo) obviously have the most favorable supply arrangement. They deal directly with large wholesalers, importers, and food manufacturers, and, due to their combined retail-wholesale volume of business, are able to acquire good discounts and lines of credit, both from suppliers and from the national banking system. These supply connections are probably one of the most important reasons why the retailer-wholesalers in the county seats

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[1] PIMA. The San Isidro Feasibility Study. p. 6.
_____. The Nicoya Feasiblity Study. p. 7.
ICESA. The Limon Feasibility Study. p. V6.

are somewhat price competitive with the much larger supermarkets and almacens in San Jose.

### 4.54 Retailer Operation Problems

A key objective of the general retailer survey was to identify felt problems in order to assist public officials to more adequately conceptualize, design, and implement programs to improve rural food distribution processes. Past experience has shown that general benchmark surveys among food merchants can be helpful in pinpointing problem areas.[1] Unfortunately in Naranjo and Puriscal questionnaires, the format utilized to identify problems did not perform well. Open-ended questions to identify first and second priority problems perceived by retailers recieved over 50 percent nonresponse, "do not know," or "no problems" responses. Yet there were a number of other questions in the survey indicating that retailers were aware of business problem areas. Combining information from various questions it was possible to identify areas where additional analysis would be useful. The percentage of different retailers identifying these problem areas is shown in Table 4.31. Given the nonresponse problem, the critical inference to be made from these figures does not derive from the absolute percentage measures but from the relative mix of problems among different types and locations of merchants.

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[1] Once these are known, specific case studies are often also necessary to provide a working-level understanding of standard operating procedures, which, in turn, facilitates the design of more realistic improvement projects.

Table 4.31 Product Procurement and Store Management Problem Areas Identified

| Problem Areas | Percentage of Retailers in Naranjo County | | | | Percentage of Retailers in Puriscal County | | | |
|---|---|---|---|---|---|---|---|---|
| | Market Stalls | Other Stores in County Seats | Retailer-Wholesalers | Rural Stores | Market Stalls | Other Stores in County Seats | Retailer-Wholesalers | Rural Stores |
| Managing credit sales to consumers | 0 | 17 | 0 | 39 | 18 | 17 | 0 | 24 |
| Need additional store space | 11 | 25 | 67 | 30 | 45 | 17 | 0 | 22 |
| Need a general line of bank credit at reasonable interest rates | 22 | 8 | 0 | 14 | 9 | 17 | 0 | 14 |
| Transportation problems | 0 | 0 | 0 | 8 | 25 | 8 | 0 | 18 |
| Product quality | 11 | 0 | 0 | 0 | 18 | 0 | 0 | 0 |
| Desire to purchase a piece of equipment but have no capital | 11 | 25 | 0 | 70 | 32 | 25 | 0 | 36 |
| Desire electricity in stores | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 10 |

Source: 1973 PIMA Retail Surveys in Naranjo and Puriscal Counties.

For example, managing and collecting on credit sales to consumers is a problem for smaller-scale outlets in urban and particularly rural areas where the lowest and most unstable income consumers tend to purchase. Smaller outlets, likewise, identified as problem areas supply and transportation (particularly in Puriscal) and the lack of either general or specific lines of credit for operating and capital investments. In contrast, retailer-wholesalers showed little concern about any of these issues. They have access to a relatively good bundle of services. All indicated present or past use of credit funds from the local banking system, while rural and other small retailers used very little credit, and the only source was through friends or family members. And many desired to purchase refrigeration and other equipment (cash registers, display cases, etc.) but found their lack of access to capital as a serious barrier to acquiring such items.

Merchant's sales expectation is a dimension of aggregate business behavior closely related to many of the previous topics. Moreover, given the lack of time series data on market shares, a short survey on sales expectations is about the only way to achieve an overview of how the distribution system is evolving. Questions were thus asked in the surveys about total sales of the present year compared to the previous year and about expectations for the next year. And again the mix of relative views held by different types of retailers is perhaps most useful.

Responses (Table 4.32) clearly establish that retailer-wholesalers have expanded sales and expect to continue to do so. In contrast, public market and other county seat locations have the largest proportional share of outlets indicating decreased sales compared to last year and the largest proportion of stores expressing uncertainty about future sales. Almost one-half of those interviewed about next year's sales expectations in each public market answered "do not know." So public market and other smaller county seat-located outlets appear to be most directly influenced by the strong growth of the retailer-wholesaler.

Results are more mixed for rural-area stores. Relatively few outlets reported higher present-year sales, and from one-fourth to one-third indicated a decrease. But approximately 50 percent of all interviewed in both counties expected future sales to increase, while very few looked for decreases. It thus is not clear that rural stores are likewise losing their market share to the larger retailer-wholesaler.

### 4.55 Problems of Public Markets in County Seats

County government officials in Naranjo, Puriscal, and elsewhere in Costa Rica approached IFAM for financial asistance to build new or improved public markets because they perceived a need to solve problems associated directly or indirectly with them. An important part of each of the PIMA studies in the various counties was to examine these problems. In Naranjo, Puriscal, San Isidro, Nicoya, and

Table 4.32 Present Sales Volume Compared to Last Year and Future Expectations

| Sales | Percentage of Outlets in Naranjo County | | | | Percentage of Outlets in Puriscal County | | | |
|---|---|---|---|---|---|---|---|---|
| | Market Stalls | Other Stores in County Seat | Retailer-Wholesaler | Rural Area Stores | Market Stalls | Other Stores in County Seat | Retailer-Wholesaler | Rural Area Stores |
| Present Year Compared to Last | | | | | | | | |
| Equal to Last Year | 39 | 42 | 0 | 35 | 41 | 17 | 50 | 28 |
| Increased Over Last Year | 11 | 17 | 100 | 8 | 9 | 17 | 50 | 22 |
| Decreased From Last Year | 44 | 25 | 0 | 33 | 32 | 50 | 0 | 22 |
| Do Not Know | 6 | 17 | 0 | 19 | 18 | 16 | 0 | 28 |
| Expectation for Next Year | | | | | | | | |
| Equal to Present | 17 | 25 | 0 | 25 | 23 | 42 | 0 | 18 |
| Expect to Increase | 11 | 25 | 100 | 53 | 14 | 25 | 50 | 48 |
| Expect to Decrease | 22 | 8 | 0 | 3 | 23 | 0 | 0 | 8 |
| Do Not Know | 50 | 42 | 0 | 19 | 41 | 33 | 50 | 27 |

Source: 1973 PIMA Retail Surveys in Naranjo and Puriscal Counties.

other counties, many personal visits, detailed observations, and informal interviews were done with public market and central business district merchants, as well as with local government officials. The following problem areas, common in varying degrees to all markets studied, were discovered:

A. Stall location. There is a strong and logical preference by market stall operators to locate their businesses in optimal sales points that are normally found around the outside perimeter and along primary consumer traffic aisles inside the markets (heaviest traffic is always right at the entrance). Such locations maximize the potential number of customers, and stalls on the outside perimeter permit opening and closing hours independent of the market, which some consider an advantage. If market administrators fail to control temporary and permanent relocations of sellers around these heavy traffic points, a "leap frog" effect takes over. New and existing sellers keep locating closer to entry points. Exterior and certain interior sections of the markets are then heavily congested with both sellers and buyers, while other areas are underutilized. This phenomenon was particularly observed in the Naranjo and San Isidro markets.

B. Relocation of sellers. Perhaps a factor causing the "leap frog" effect, there can also be a disproportional distribution and mix of stalls inside markets which overly concentrates shopper traffic. This was particularly true

in Naranjo. If all of the heaviest traffic generator sales locate in one area, internal customer movement in other sections of the market are minimized. So many retailers try to relocate or to at least send someone to sell in the aisles near the busy section. In contrast, a less concentrated flow of consumers could be arranged with an appropriate mix and strategic location of certain key traffic generators, thus minimizing the need to relocate in order to get customers.

C. Vertical space utilization. Inside the markets, available floor and vertical space for product exhibition and sales in many cases is seriously underutilized (Naranjo and Puriscal vegetable stalls were particularly underutilized). Comparing alone across markets in Costa Rica, some vegetable stall operators used display shelves covering three and four levels of vertical space, with others displaying items on the floor or on tables, using only one level of vertical space. In other cases shopping aisles were too wide, thus devoting a disproportionate amount of floor space to non-income-generating activities (the case of some parts of the San Isidro market).

D. Stall subdivision. Many existing stalls have inappropriate physical configurations for the type of product or sales technique desired. And due to inflexible construction materials (cement walls and table surfaces), changes and/or expansion to fit new and improved methods are difficult. For example, vegetable stalls in the Puriscal

market are small rectangular cement compartments designed for storage of products below and one layer of product on top for exhibition and sales. This was totally disfunctional: sellers rarely used the storage space because it was so difficult to reach. And wooden superstructures were often built on top of the cement tables and in the aisles in order to provide additional vertical product exhibition areas.

E. Services. Administration services of cleaning, repairing, and garbage collection were usually less than adequate. The Naranjo market's roof leaked very badly and almost all markets visited were in need of improved lighting and sometimes ventilation. Likewise, management of rent determination and stall allocation is normally executed according to simple accounting considerations and does little to stimulate and facilitate improved sales methods. Costa Rican Public Law 2428 does call for public market stall rentals to be reevaluated every five years. In some cases rental fees for small fruit and vegetable stalls were quite low: in fact, in one market a seller had rented the stall next to his just to keep a competitor from installing there. In most cases there was little correlation between the volume of potential sales and rental fees. Meat stalls, for example, in both Naranjo and Puriscal pay much less rent per volume of sales than do vegetable or grain stalls. Hence, little is done either directly or indirectly to actually manage and improve

municipal markets or the efficiency of sellers' operation methods. Finally, rental fees for restaurants and liquor sales businesses locating in public markets are sometimes subsidized, compared to rates for similar businesses outside public markets. In Naranjo, for example, the four bar/restaurants occupy about 16 percent of the effective sales area of the market, paying average rental rates of (colones) $2.34 $m^2$, while similar businesses located in the commercial business district pay an average of (colones) $5.00 $m^2$.

F. Farmers' sales. Finding space for local farmers who want to occasionally use public markets as points for selling to consumers is an additional problem in some counties. As discussed previously, sales to retailers by local small farmers are often difficult to coordinate (due to unstable supply). Farmers therefore come to the county seat public markets searching for a temporary spot where they can take advantage of the consumer traffic created by the market and commerce in the surrounding central business district. If they locate on the exterior sidewalks and at the entrances to the markets (and market retailers are also invading these areas), congestion is increased even more. In fact, it is sometimes in response to this particular phenomenon that local government leaders decide to increase the size or to build a new market.

## 4.56 County Seat Growth and Related Marketing Problems

Analysis shows that public markets do not operate independently but are integral parts of commercial and other economic activity taking place in central business districts of towns and cities in Costa Rica. Hence, there are many critical relationships between forces influencing change in overall commercial activities and those facing public food markets. The purpose of this final section is, therefore, to briefly consider the process of county and small town (rural county seat) growth and some of the corresponding implications for food marketing in general, and public markets in specific.

As discussed in Chapter Three, historical Costa Rican population growth rates have been quite high but are beginning to slow down significantly. Conservative projections still indicate a possible doubling of present national population by the year 2,000.[1] Within this general trend, a critical question faces policy-makers in counties such as Naranjo and Puriscal: how rapidly will their urban areas (county seat) and respective areas of influence grow and what impact will this have on a broad set of needed social and economic services, as well as on all commercial needs (including county seat public market)?

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[1]Thomas G. Sanders, Population Perception and Policy in Costa Rica, American Universities Field Staff Reports, Mexico and Caribbean Area Series, Vol. VIIII, No. 1 (Hanover, New Hampshire: American Universities Field Staff, 1973), p. 9.

Migration rates have been high in the country, so we must begin by carefully looking at both county seat and rural populations. For example, while the county seat of Naranjo grew at a yearly average of 3.8 percent from 1963 to 1973, the total county population expanded at only 1.8 percent yearly (Table 4.32). Starting in 1963 with 12,317 rural inhabitants and with a three percent average rate of growth (net of migration), the rural population would have grown to approximately 16,553. Due to out-migration from rural areas, its population was, in fact, only 13,777 in the 1973 census.

Puriscal experienced even higher out-migration. Its 21,900 rural population would have grown to 29,400 by 1973: instead, the new census found 21,562 rural residents. So an estimated 7,838 people left the rural area, with some staying in the county seat (resulting in a five percent rate of growth there) but a majority leaving the county altogether.

Thus, while the population of their areas of influence changed little, if any, both county seats grew rather rapidly. In fact, the 23 county seats with markets shown in Table 4.33 grew yearly during the intercensal period at an average geometric rate of 5.6 percent. If these rates are maintained, towns will increase, onthe average, approximately 70 percent in 10 years and nearly 200 percent in 20 years.

Table 4.33 Population Growth in Counties Outside San Jose Metropolitan Region with Public Food Markets

| Counties | County Seat Population 1973 | County Seat Average Annual Growth Rate[1] (Intercensal Period 1963-1973) | Rural Population 1973 | Rural Area Average Annual Growth Rate[1] (Intercensal Period 1963-1973) | Total County Average Annual Growth Rate[1] (Intercensal Period 1963-1973) |
|---|---|---|---|---|---|
| Limon | 29,621 | 4.3 | 11,209 | -5.9 | 0.2 |
| Puntarenas | 26,331 | 3.0 | 39,231 | 0.9 | 1.7 |
| Turrialba | 12,151 | 3.5 | 31,051 | 0.7 | 1.4 |
| Liberia | 10,802 | 5.9 | 10,979 | 10.3 | 1.9 |
| San Carlos | 9,754 | 10.2 | 45,198 | 3.3 | 4.1 |
| San Ramon | 9,245 | 3.7 | 23,910 | 2.1 | 2.5 |
| Perez Zeledon | 8,871 | 5.2 | 58,218 | 3.3 | 3.5 |
| Grecia | 8,355 | 5.6 | 23,451 | -3.2 | -3.2 |
| Nicoya | 7,474 | 8.9 | 29,761 | -1.1 | 0.2 |
| Golfito | 6,962 | 0.2 | 35,548 | 1.8 | 1.5 |
| Canas | 6,053 | 7.3 | 6,726 | 0.9 | 3.4 |
| Naranjo[2] | 5.944 | 3.8 | 13,777 | 1.1 | 1.8 |
| Esparta | 4.699 | 5.1 | 7.396 | 1.6 | 2.8 |
| Siquirres | 4,361 | 7.3 | 13,772 | 4.2 | 4.8 |
| Tilaran | 3,294 | 7.1 | 9,269 | -1.2 | 0.4 |
| Orotina | 3,170 | 6.1 | 5,309 | -0.1 | 1.8 |
| Palmares | 3,083 | 7.3 | 11,412 | 0.6 | 1.7 |
| Purisca[2] | 2,588 | 5.0 | 21,562 | -0.2 | 0.2 |
| Jimenez | 1,901 | 5.9 | 9,622 | 0.3 | 1.0 |
| Mora | 1,840 | 10.5 | 8,893 | 0.7 | 1.8 |
| Atenas | 1,728 | 6.0 | 10,882 | 0.8 | 1.4 |
| Montes de Oro | 1,673 | 4.1 | 5,306 | -0.3 | 0.5 |
| San Ignacio de Acosta | 446 | 3.5 | 13,933 | 0.9 | 0.9 |

[1] Geometric growth rates (annual compounding) calculated by author.

[2] Population of county seats in 1963 were adjusted to new definition of county seat city limits used in 1973 Census.

Source: 1973 Costa Rican Population Census

Growth rates of this magnitude, even for small towns, represent significant demands on local resources for physical infrastructure needs just to keep up with population, not to mention seeking to improve the quality of services. In fact, one of the principal reasons for creating IFAM was to provide credit and technical assistance to county governments in this growth and development process.

Incomes of the population in these counties are also growing and, when combined with population increase, result in even faster growth in the demand for all types of commercial services. Central business districts in both Naranjo and Puriscal have expanded to provide space for new businesses. Yet a number of growth-related problems that indirectly (and sometimes directly) influence public markets are present.

First, there is a relatively high rate of change in the nature of commercial sales activities in Costa Rica. Larger volume stores requiring larger rental units, self-service technologies, more modern exhibition and display cases, etc., are becoming more frequent, even in rural county seat towns. Public market constructions that do not or have not considered these needs but have only sought to meet traditional retailing techniques, can become serious physical barriers to adoption of improved working technologies.

Second, and perhaps more important for long-run commercial development, county planners have not used land-

use policy and related economic incentive schemes to foment efficient use of central business district land areas. There are presently many vacant lots and underdeveloped commerical buildings within and adjacent to these areas in Naranjo, Puriscal, and many other county seats. There have likewise been few efforts to discourage home construction in strip developments along roads leading into these towns, while within city limits there are many vacant lots and underdeveloped areas. Resulting town growth is not concentrated, and public utility and other service costs are higher than they would be under more compact urban development patterns.

Thirdly, motor vehicle and sometimes pedestrian congestion problems are also present in many central business districts on peak use days in many county seats. PIMA studies documented problems in Puriscal and San Isidro.[1] Lightweight private vehicles (jeeps, pickups, and automobiles) park for unlimited times on both sides of principal business district streets, on which there is still two-way vehicle traffic. Moreover, since there are no loading and unloading zones for commercial businesses, freight vehicles picking up and delivering often must park in the street, adding to the congestion. And other streets just two and three blocks from these areas are virtually without parked or sometimes even moving vehicle traffic. The

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[1]PIMA. The San Isidro Feasibility Study, p. 26.
_____. The Puriscal Feasibility Study, p. 63.

location of the stock yards in Puriscal also created traffic congestion on the street in front of the market.

Finally, intra- and inter-county bus stations may still be located in the heart of central business districts, often adjacent to public markets. (This was the case in Naranjo and San Isidro.) The location and operation of these also contributes to congestion. Thirty to forty years ago, when many existing public markets were constructed, they were the center and most important location of commercial activities in central business districts. At that time it was logical to locate bus stops and/or stations adjacent to, or in, public markets. This made it convenient for consumers and sellers to arrive at their main point of destination.

Today, however, bus station/market combinations can easily be disfunctional. Shoppers no longer visit only the markets, but patronize commercial and public service establishments located throughout central business districts. These now can cover from 5 to 20 city blocks and constitute a general market place. On the one hand, to attempt to direct the arrival and routing of all bus traffic to one internal point in such districts can only add to congestion and a lack of parking, loading, and unloading space.

On the other hand, present-day locations of both inter- and intra-county bus stations are strategic to development of central business districts. Corridors of

potential shoppers are created by the movement of passengers from bus stations/stops to important final or intermediate destinations. The planned location of these can achieve more orderly commercial growth. A good example of this was found in Puriscal, where there is no one bus station or stop, but the inter- and the four or five intra-county lines have different permanent stopping locations spread around the main public plaza. This has helped, over time, to promote less of a strip commercial development and more of a balanced growth around the main square of the town. On the other hand, in Naranjo, the location of the intra-county bus station adjacent to the most heavily used entrance to the public market increased congestion. It also reduced the commercial desirability of market stalls at the entrances to the market which were out of the line of pedestrian traffic created by shopper movement between the intra- and inter-county stations.

This concludes the analysis of the Naranjo and Puriscal Counties' food distribution subsystems. Only occasional reference has been made to other counties because there were no comprehensive studies of these. Strategic data and observations were collected, however, and indicate overall food distribution processes quite similar to those of Naranjo and Puriscal. Large numbers of small-scale rural retailers were identified in the San Isidro study and in an unpublished review of food merchants in Grecia County. The Naranjo and Puriscal data

indicate an average in rural areas of one store for every 30 to 35 families. Similar statistics for San Isidro and Grecia indicate one for every 38 to 45 families, respectively. The location of grocery stores in most small and large rural villages in Costa Rica was also shown in an economic geography study of central place functions.[1] From a list of all urban and rural communities larger than 300 in the country, a stratified random sample of 37 places was studied in order to identify existing economic functions and population sizes. Food stores and bars were ubiquitous in all communities. Other observations in the study also indicated that food stores are usually present in the hamlets or small villages of fewer than 300.[2]

Informal PIMA studies of food wholesaling in the county seats of a majority of the counties in the central valley and around San Jose indicated supply mechanisms quite similar to those of Naranjo and Puriscal. Two or three important grocery wholesalers and/or retailer-wholesalers were present in every county seat.

Finally the national wholesale market study found fruit and vegetable assembly processes in each county relating directly to the national market. County seat public markets were not involved: instead, assembly was via a

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[1] J. Ratcliffe, "An Examination of the Population Economic Activities Relationship and Hierarchy of Central Places: The Costa Rican Example," (Unpublished Ph.D. dissertation, Indiana University, 1970), p. 56.

[2] Ibid., p. 83.

system of farmers with their own transport vehicles and truckers operating as both freight agents and buyers moving products directly from farm and roadside pickup points to the San Jose market area.[1]

The descriptive diagnostic of Naranjo and Puriscal food distribution subsystems in this chapter has examined consumer, retailer and wholesaler behavior. It has also focused upon public markets as coordinating institutions of local marketing processes. The following chapter will undertake a benefit/cost analysis of selected public market projects. As an introduction to this topic, the chapter will begin with a summary of the most important vertical organization and coordination characteristics identified in the present chapter.

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[1]PIMA, Programas para Mejorar el Sistema de Mercadeo Agropecuario en Costa Rica, p. 4-19.

# CHAPTER V

## A BENEFIT/COST ANALYSIS OF SELECTED PUBLIC MARKET PROJECTS

In light of the understanding now available of the rural county food distribution subsystems, the purpose of this chapter is to analyze costs and benefits of the proposed public market projects. A quantitative financial and economic benefit-cost analysis will be performed on the original Naranjo (and Grecia) proposal, but not on the Puriscal project as it never reached the same level of actual architectural plans and specific building cost estimates.[1] A qualitative economic benefit-cost analysis will likewise be undertaken for the Naranjo and Puriscal cases.

The IFAM loan development and analysis procedure will also be examined because it is central to the broader question of government resource allocation, both within the

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[1]Although the descriptive diagnostic in Chapter 4 did not include the Grecia project, it will be analyzed here since it was the first market project designed and was actually financed and implemented by IFAM. On the basis of personal observations and review of information on the number and type of food merchants operating in this county, it appears that its food distribution subsystem is quite similar to those of Naranjo and Puriscal.

food marketing area, and between it and other public service needs of rural county governments.

Before looking at these projects, let us first review and summarize the most important characteristics and problems of the food distribution subsystems operating in these and other areas of Costa Rica.

## 5.1 Summary Characteristics of Food Distribution Subsystems

Events in the metropolitan food distribution system are important for rural counties. In the urbanized region surrounding San Jose there is already a brisk pace of change in food consumption and related retailing and wholesaling activities. And due to continuing increases in population, urbanization, and income the general demand for marketing services over the next 20 years is expected to increase some four times over present levels.

Changes have already stimulated evolution towards a system of decentralized retailing wherein public markets are no longer dominant. Over the past 10 years there has been a rapid expansion of supermarkets and various sizes of personal service outlets located in and near residential areas. Food wholesaling is also changing with movements toward greater channel coordination: already there are vertically integrated supermarket chains, wholesale operations cooperatively owned by retailers, and some independent wholesalers offering a broader line, improved service.

In spite of these potentially progressive elements, the large-urban-area distribution subsystem was judged not

to be adjusting as adequately as possible to changing demands (especially that part serving low income consumers). Nor was it considered to be advancing sufficiently towards more effectively linking urban consumer needs to rural food production potentials, both of small and large farmers.

In Naranjo, Puriscal, and other rural counties, problems were found with the physical state of repair, general operation, and traffic congestion surrounding county seat public markets. A greater need for planned and organized development of central business districts and related commercial activity was also identified. Yet food merchants operating in public markets represent only one portion of a more complex and interrelated (although largely unrecognized by local policy makers) food distribution system serving county residents. Efforts to improve the performance of these marketing processes must consider a broad set of participants and not just those who have traditionally marketed food from stalls in the public market.

Within rural distribution subsystems in Naranjo and Puriscal Counties (and most other areas of Costa Rica), agricultural specialization has progressed to the point that farmers and town-located consumers are primarily dependent on purchased food supplies rather than farm perquisites. Families living on dispersed farms, in villages, and county seat towns spend an average of 45 to 50 percent of their cash incomes on purchased food supplies.

Distribution processes within these systems are both complex and usually unrecognized by casual observation, since a relatively large number of small-scale grocery stores located in rural areas (and neighborhoods of the county seats) supply as much as half of the food purchased by county residents. Across urban and rural areas of both counties (and most others in the country) there is an average of one food store for every 25 families. Located in rural areas (villages and dispersed farms) there is an average of one store for every 30 to 35 families.

Prices for basic items are generally higher in these rural outlets, however, consumers' patronage is explained by the locational convenience and, when needed, the availability of sales on credit. Moreover, the importance of local, convenient sales of many basic food items for the village and dispersed farm populations cannot be explained by a lack of alternative retail outlets. A majority of consumers have access to daily bus transportation between outlying areas of townships and county seats. In fact, they generally go to county seats via these modes to shop for perishables, nonfood consumer goods, and agricultural inputs.

Public market retailers form a part of local food distribution systems, but their estimated share of total monthly sales ranged from 25 percent in Naranjo to 15 percent in Puriscal. Sales here are relatively specialized in perishable items: consumers from both county seat and rural

areas patronize them because they usually tend to be the only place where such products are sold.

Larger scale retailer-wholesalers in each county seat command the largest single market share (and are growing), competing favorably with State CNP outlets for lowest prices and in providing a broad line of grain and processed food items. These merchants clearly are the most dynamic elements in the local systems and have a potential to begin to improve vertical coordination and thus to lower costs and improve the quality of wholesale services available to a majority of the small local retailers. Yet little has been done to promote such changes, and due to their volume of operation and strategic position as both the largest retailers and only wholesalers, they also represent potentially strong geographic monopolies in the local system.

The food distribution subsystems identified in each county are not independent but are closely integrated into national markets and the San Jose metropolitan distribution subsystem. Larger and more mobile outlets from each rural county procure supplies directly from the San Jose area supplies, while smaller rural and neighborhood outlets depend for a majority of their provisions upon local retailer-wholesalers who purchase from these national sources.

Finally, the smaller retailers in both counties face a number of important store operation and procurement problems that must be considered in order to begin to improve

performance. Managing credit sales to consumers, overcoming the lack of operating funds, obtaining access to credit to purchase refrigeration and other equipment, and dealing with transportation, procurement, and product quality problems are all important concerns.

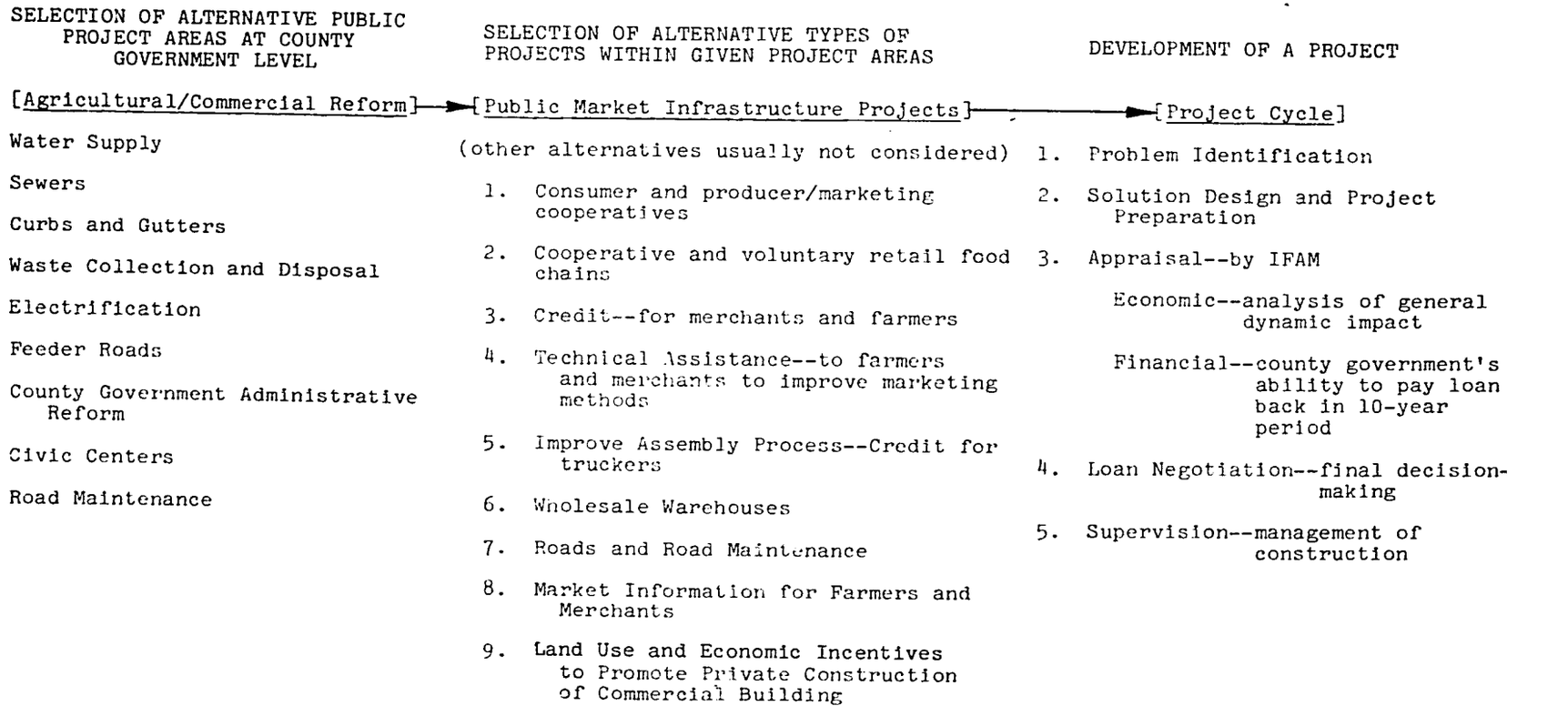
The use of public resources to design strategies and specific projects to meet these needs is an important, albeit still generally unrecognized, competitor with the demand for resources to improve public markets.

## 5.2 County Government and IFAM's Actions on Market Project Requests

Various county governments had approached IFAM by June, 1973, requesting financial assistance to either build or remodel a public market or to carry out a feasibility study on how to do this. (These counties and the size of loan requests are listed in Table 4.0.) In order to better understand how these decisions were reached, a number of councilmen from Naranjo, Puriscal, San Isidro, and other counties were informally interviewed. Discussions were likewise undertaken with personnel in the Loan Operations and Technical Assistance departments of IFAM. From these it was learned that within both county and/or IFAM administrative units, three critical decision-making processes were implicitly and/or explicitly being carried out. The sequence of these is shown graphically in Figure 5.1.

First, elected county councilmen and county managers decided upon public project areas, given their perceptions

Figure 5.1 Sequential Decision-Making Processes Involved in Public Market Projects Financed by IFAM



of local problems and priorities. The list of alternative project areas shown in Figure 5.1 is derived from the IFAM loan portfolio to all counties in the country as of November, 1973. As requests came to IFAM, there was little effort to assess local government judgments as to whether relatively highest priority problem areas were identified for their respective counties. Likewise, at county government levels there was little explicit consideration (through formal analysis or public hearings) of whether something other than an agricultural/commercial reform project ought to be undertaken.

Second, within the project area of agricultural/commercial reform activities, there was no formal or informal consideration of alternative actions to solve basic problems. The alternatives listed in Table 5.1 were usually not even perceived by local decision-makers or by IFAM. Generally a vocal minority of the group of elected councilmen was a strong supporter of the idea that something should be done by the present administration to improve the public market. In all the cases studied there was no evidence of overt conflict of interest by elected officials with construction firms or merchants located in the markets. Two or three councilmen simply perceived these as priority problem areas and were successful in convincing other members that such projects were vital.

Traditionally this type of action by county governments has been common, particularly during earlier periods

of Costa Rican history when public markets housed a majority of the commercial activities that were only beginning to develop as the local economy grew. Thus, new or improved markets represented straightforward physical manifestations that elected local officials were providing useful public services. And this perception appeared to still have a strong influence among county councilmen.

IFAM loan analysts and technical assistance personnel were well meaning but likewise not well prepared nor supported by other Costa Rican public and private researchers to study basic food marketing processes and alternative solutions to critical problems. IFAM and outside agency technicians appeared to have relatively good skills in other project areas such as water supply, waste collection, electrification, and road systems. These tend to be more engineering-oriented areas in which local engineers and economists are more capable of analyzing and designing relatively effective reform projects. And since there are national water supply, electricity, and road building public institutes in the country, IFAM and county councilmen have effective technical resource people available as consultants.

Farm marketing and food distribution activities, however, are more behavioral processes (although they do involve physical infrastructure) with which local technicians have less analytical and practical experience. There are likewise no public research nor extension personnel

available in other government agencies charged with developing local and national food systems. Therefore, the process of identifying problems and studying alternative solutions in the agricultural/commercial project area was not working well, if at all.

Third, as shown in Table 5.1, the projects went through a more or less formal cycle of important preparation stages. Problem identification was generally left to the county councilmen and local decision-making processes. IFAM was formally approached for financial assistance, at either stage 2 or 3 of the cycle. If the respective county council had sufficient funds and initiative, an engineering/architectural firm would be directly contracted to design a new or remodeled market and to develop costs and potential rental income estimates. Completed project feasibility studies were then brought to IFAM for appraisal and loan negotiation. Naranjo and Grecia counties followed this method. The Puriscal council instructed their county engineer to prepare a preliminary plan. Other counties approached IFAM for funds to finance a feasibility study to design and prepare a project on the assumption that the councilmen had correctly identified the problem (i.e., some kind of improved market was necessary). IFAM either approved or disapproved of the feasibility study requests with minimal changes or influences on the terms of references of the study.

Table 5.1 Characteristics of Public Market Projects Designed for Grecia, San Carlos, Naranjo, and Puriscal Counties (Costs in Colones)

| | Grecia | San Carlos[2] | Naranjo | Puriscal[4] |
|---|---|---|---|---|
| Size of Existing Markets | 1,500[1] | 1,744m$^2$ | 1,157m$^2$ | 811m$^2$ |
| Size of New or Remodeled Markets | 5,700m$^2$ | 4,704m$^2$ | 1,800m$^2$ | 1,200m$^2$ |
| Land Costs | $ 800,000 | $1,059,200 | $ 560,000 | $100,000 |
| Value of Old Construction | --- | --- | 240,000 | 160,000 |
| Costs of New Construction | 2,684,900 | 1,200,000 | 772,147[3] | 230,000 |
| Engineering and Other Costs | 207,200 | 302,000 | 111,758 | 23,000 |
| Total Costs of Projects | $3,692,100 | $2,561,200 | $1,683,905 | $513,000 |
| Amount of IFAM Loan | $2,300,000 | $1,880,000 | $772,147 | $225,000 |

[1]Estimated, since exact figures were not available in feasibility studies.

[2]These are preliminary costs from the feasibility study calculations based on construction costs in San Jose and not on calculated costs of the suggested market design for San Carlos. It is expected that actual costs would be somewhat higher.

[3]Building costs include an estimated $100,000 for an intra-county bus station to be constructed adjacent to the market.

[4]These cost figures are estimated by the author, since there are no feasibility studies or loan documents prepared.

Source: IFAM Loan Documents and Project Feasibility Studies for Grecia, San Carlos, and Naranjo Market Projects.

By whatever design and preparation procedure, IFAM's loan operation department would appraise the project along two dimensions. One was a limited economic consideration of the potential general dynamic impact of the project, usually based on ideas and data supplied by the engineering/architectural consulting firm. The second was a financial analysis of the county government's overall administrative unit, looking in detail at all sources of income and expenses, at user rates for county-provided public utility services, and at county financial management performance. The technical assistance division of IFAM would collaborate in this, seeking to identify areas where training courses and other administrative improvement techniques were necessary.

This latter dimension received the major (usually almost exclusive) attention of IFAM, since they conceived of their loan activities as a mechanism through which to channel technical assistance on local government administration. From a financial standpoint, IFAM technicians examined the past and expected future net cash flow positions of the counties, thus assuring that the requested loan could be repaid within the 10-year payback period required by them. There were no discounted financial or economic benefit/cost analysis techniques applied to the projects. Cash flow budgets were prepared for the projects to predict deficits that would have to be covered from general tax and other sources of county revenue.

## 5.3 Overview Analysis of Market Feasibility Studies

PIMA studies focused on newer market loan requests (and a reevaluation of the Naranjo one) in spite of the two existing feasibility studies for Grecia and San Carlos counties. Only occasional, if any, reference to these studies was made throughout the analysis of Naranjo and Puriscal cases, since they contained little useful information on the broader food distribution subsystems in the respective counties. For purposes of the present chapter, however, it is useful to review the general methodology and conclusions of these two earlier works, as well as those of the Naranjo and Puriscal cases. All of these responses to problems are significant because they established a local precedent of how to study and design market projects. In fact, the Grecia market was already under construction when the present research was begun, and its strong demonstration effect was expected to motivate requests from other counties for similar projects.

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[1]This section is based on an analysis of the following feasibility studies and respective IFAM loan documents. Note that a copy of the Grecia Feasibility Study was never obtained, although IFAM officials claimed it was used to prepare the loan document. Hence, all information about the Grecia case is obtained from the loan document.

(a) Agroindustrias Toro, The San Carlos Feasibility Study.

(b) AICA-SAMAG, The Grecia Feasibility Study.

(c) ICESA, The Naranjo Feasibility Study.

(d) IFAM Loan Documents: (1) Grecia Market, November, 1971; (2) San Carlos Market, September, 1972; (3) Naranjo Market and Bus Station, March, 1973.

From a research orientation perspective, the basic capabilities and interests of technicians working for the private consulting firms carrying out these studies was to examine food and other marketing needs in a limited and relatively static framework. Authors of the San Carlos study were more knowledgeable about food production and marketing needs than those working on the Grecia and Naranjo study; however, all were generally bound by the perspective of those marketing activities being carried out within the public markets. None of the studies focused upon understanding or predicting the relationship between overall commercial activities within entire counties, or even county seat communities, and those realized within the physical confines of the public markets. Consequently, existing or expected trends in market shares and resulting space needs of various groups of merchants in the counties were not studied.

Each consulting group assumed explicitly that county governments' objective of influencing and facilitating local agricultural/commercial growth and development was valid. But none asked questions about the costs and benefits of alternative public action to achieve such goals. All basically accepted the problem definition of the need to build or remodel public markets. This was particularly true of the engineering/architectural firms working in Grecia and Naranjo cases (and the city engineer working

on the Puriscal project. There were also selected cases of an indirect financial incentive for firms to recommend large building programs. That is, groups doing both feasibility and engineering/architectural studies signed contracts with the county governments granting rights to do final engineering and architectural plans. As a matter of standard operating procedure, fees for these are determined on the basis of a percentage of total building costs (10%).

Each firm designed and carried out structured interviews with public market retailers for the basic purpose of identifying felt problems about space needs and overall attitudes towards an improvement project. None of the surveys sought to identify or understand individual business operation or management problems, and their potential relationship to physical space needs. All surveys contained questions to see if retailers would be willing to pay higher rents for new or improved physical facilities and related services.

Finally, although there is no formal feasibility study, it is useful to review the sequence of the project submitted to IFAM by Puriscal. County councilmen did not hire an outside consulting firm but instructed their county engineer to prepare a tentative plan and engineering drawing for an addition to their existing market. The county owned land adjacent to their existing market, and the engineer simply designed a building to fit that area which would integrate into the present facility.

Data in Table 5.1 outline cost and size dimensions of the four projects. Both the Grecia and San Carlos projects would increase available market commercial sales space over 100% above existing levels, adding a significant number of new store locations for all types of food and nonfood items. The Naranjo project was more modest, calling mainly for increased space for existing merchants. The Puriscal addition was to increase the amount of space about 50 percent in order to accommodate anticipated demand for new sales locations and for space to carry out the grain and panela assembly functions presently performed in the streets around the existing market.

Land costs represent from 20 to 30 percent of total project costs, although only in San Carlos was there to be an actual cash purchase of land. In all other cases counties acquired the land at earlier periods. Existing market buildings and land to be used for the new construction were the major county contributions to each project. IFAM loans were essentially to be used to finance new construction.

## 5.4 Analysis of Specific Benefits and Costs

Policy-makers involved in public and private resource allocation processes require as much information as is economically feasible about decisions under consideration. Benefit/cost analysis is a common framework within

which much information of this nature is coordinated.[1] In its most fundamental form it requires (1) accurately projecting future economic and social outcomes, (2) assessing the desirability of these consequences as related to expected performance objectives, (3) comparing costs required to generate such outcomes with their benefits through a computational device (some form of present worth or discounting analysis) that accounts for the different time periods in which the stream of future activities will occur.

For purposes of the present evaluation, both a financial and economic benefit-cost analysis will be completed.[2] The financial review deals with the specific revenue-earning potential of the market projects over their lifetime. Suc an analysis shows whether, in fact, the county governments may expect to recover financial costs involved in building and operating the markets. If subsidies from other revenue sources are required, projects may still be necessary because they produce direct and indirect social benefits available for local consumers and other food system participants but which are not directly recoverable by local government. On the other hand, projects may be financially viable and still unjustifiable due to the social opportunity

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[1]For an introductory discussion of this analytical tool, see Chapter 24--Cost-Benefit Analysis and the Provision of Public Goods, in Microeconomic Theory--Basic Principles and Extensions, by Walter Nicholson.

[2]Basic techniques used generally follow conventions recommended by J. Price Gittinger, Economic Analysis of Agricultural Projects (Baltimore: Johns Hopkins Press, 1972).

cost of resources involved. To carefully examine such issues, it is first necessary to know what real financial costs are involved.

The economic analysis will quantify and discount a narrow set of expected direct benefits and costs. More importantly, it will qualitatively investigate broader concepts of opportunity costs of public actions, and dynamic indirect concerns of improving individual county and national food distribution processes. This approach is taken because the public market projects are so narrowly conceived in spite of the ambitious expectations of their designers. An important objective is therefore to examine how modified market projects and other reforms could better achieve county governments' goal of improving overall performance of local food distribution processes. Hence, the economic analysis will basically examine expected (or unexpected) impacts of the projects and other alternative actions on selected food system performance dimensions discussed in Chapter II.

### 5.41 Financial Analysis

Land, construction, and yearly operating expenses are the primary costs included for the financial analysis of the Naranjo and Grecia projects. For the most part, estimates of these are taken from the feasibility studies. Assumed values for the land already owned by each county government were reasonably in line with actual market prices in each

community. Construction expenses were estimated by standard building formulas, based on the final architectural plans of each project. Construction labor costs were valued at market rates, as were those of expected maintenance and market administrative personnel. Overall operating and maintenance costs were assumed to increase 10 percent every five years for a 15-year period and were then left constant for the remaining life of the Grecia project. They were increased at a slightly higher rate for the Naranjo market, since the final facility was a remodeled and not a new building.

Project financial benefits are the expected rental fees from the markets (also from the bus station in the Naranjo project), plus salvage values of the land and buildings in the final year of the analysis. In both cases new rents were programmed at levels significantly higher than present ones. Current levels in Naranjo were approximately (colones) $3.00 per square meter, and future rates were estimated at $5.00 per square meter, plus 10 percent increments every five years for a period of 15 years. In the Grecia market, average rates are estimated at (colones) $3.00 per square meter, and new ones ranged from $5.00 to $10.00 per square meter, depending on the type of location. Both feasibility studies justified higher levels on the basis of improved services and on the questionnaire responses of market users. A majority of

Table 5.2 Total Yearly Financial Benefits and Costs of Grecia and Naranjo Market Projects (1973 Colones)

| Year | Grecia Public Market | | Naranjo Public Market | |
|---|---|---|---|---|
| | Total Yearly Benefits--Rent and Salvage Value $ | Total Yearly Costs--Construction, Land, and Operating Costs $ | Total Yearly Benefits--Rent and Salvage Value $ | Total Yearly Costs--Construction, Land, and Operating Costs $ |
| 1 | --- | $2,863,000[2/] | --- | $1,697,905[4/] |
| 2 | $ 150,000 | 878,800 | $ 62,000 | 23,000 |
| 3 | 250,000 | 49,700 | 62,000 | 23,000 |
| 4 | 250,000 | 49,700 | 62,000 | 24,000 |
| 5 | 250,000 | 49,700 | 62,000 | 24,000 |
| 6 | 250,000 | 49,700 | 62,000 | 24,000 |
| 7 | 250,000 | 49,700 | 68,200 | 25,000 |
| 8 | 275,000 | 54,700 | 68,200 | 25,000 |
| 9 | 275,000 | 54,700 | 68,200 | 25,000 |
| 10 | 275,000 | 54,700 | 68,200 | 26,000 |
| 11 | 275,000 | 54,700 | 68,200 | 26,000 |
| 12 | 275,000 | 54,700 | 75,020 | 26,000 |
| 13 | 303,000 | 60,100 | 75,020 | 27,000 |
| 14 | 303,000 | 60,100 | 75,020 | 27,000 |
| 15 | 303,000 | 60,100 | 75,020 | 27,000 |
| 16 | 303,000 | 60,100 | 75,020 | 28,000 |
| 17 | 303,000 | 60,100 | 82,522 | 28,000 |
| 18 | 303,000 | 62,200 | 82,522 | 28,000 |
| 19 | 303,000 | 62,200 | 82,522 | 29,000 |
| 20 | 303,000 | 62,200 | 82,522 | 29,000 |
| 21 | 303,000 | 62,200 | 82,522 | 29,000 |
| 22 | 303,000 | 62,200 | 82,522 | 30,000 |
| 23 | 303,000 | 72,800 | 82,522 | 30,000 |
| 24 | 303,000 | 72,800 | 82,522 | 30,000 |
| 25 | $1,630,200[1/] | $72,800 | $751,522[3/] | $31,000 |

[1/] Salvage value of land ($800,000) and building ($527,000).

[2/] Total construction costs ($2,892,100) and land costs ($800,000).

[3/] Salvage value of land ($560,000) and building ($109.000).

[4/] Total construction costs ($1,123,905) and land costs ($560,000).

Source: Grecia and Naranjo Feasibility Studies and IFAM Loan Documents.

those surveyed in each case indicated a willingness to pay higher rates for new and improved facilities.

Using the Michigan State University Computer Center program (BENCOST), benefit/cost ratios, internal rates of financial return and net present values of the discounted flow of private benefits minus costs were calculated on the basis of the above data. Projects were assumed to last for 25 years; and by changing a number of assumptions regarding costs and benefits, a sensitivity analysis was also performed. Results of the alternative computer runs for the financial as well as economic analysis are shown in Table 5.3.

Assuming an eight percent rate of discount (interest), base financial run results for both projects reveal very unfavorable investments for respective local governments. The Grecia project is a relatively better one, although both yield negative net present values and internal rates of return below the actual interest rate to be charged on the money borrowed to implement the projects. Benefit/cost ratios are less than one. Base runs were calculated at an eight percent discount rate, because loans available to each government from IFAM were to be obtained at this cost and the purpose of a financial analysis is to examine actual out-of-pocket costs and returns faced by investors. Land used in each project was most likely purchased with government funds costing at least eight percent and probably

Table 5.3 Results of Financial and Economic Benefit/Cost Analysis

| Alternative Runs | Rate of Interest or Discount (Per Cent) | Grecia Market | | | Naranjo Market | | |
|---|---|---|---|---|---|---|---|
| | | Benefit/Cost Ratio | Internal Rate of Return (Per Cent) | Net Present Value (Colones) | Benefit/Cost Ratio | Internal Rate of Return (Per Cent) | Net Present Value (Colones) |
| Base Financial Run | 8 | 0.7 | 4.3 | -1,218,945 | 0.4 | 0.4 | -1,128,455 |
| Decrease Benefits 20% | 8 | 0.6 | 2.1 | -1,817,237 | 0.3 | -1.4 | -1,296,308 |
| Decrease Benefits 40% | 8 | 0.4 | -0.7 | -2,507,407 | 0.3 | -3.6 | -1,464,305 |
| Increase Benefits 20% | 8 | 0.9 | 6.2 | -620,654 | 0.5 | 1.9 | -960,530 |
| Increase Benefits 60% | 8 | 1.1 | 9.5 | 575,928 | 0.7 | 4.2 | -624,681 |
| Increase Benefits 100% | 8 | 1.4 | 12.5 | 1,772,510 | 0.9 | 6.3 | -288,831 |
| Decrease Operating Costs 40% | 8 | 0.8 | 4.6 | -1,103,002 | 0.5 | 1.2 | -1,014,785 |
| Increase Operating Costs 40% | 8 | 0.7 | 3.1 | -1,566,776 | 0.4 | -0.5 | -1,242,125 |
| Best Feasible Case[1/] | 8 | 1.5 | 13.1 | 2,004,397 | 0.9 | 7.0 | -175,161 |
| Worst Feasible Case[2/] | 8 | 0.4 | -3.3 | -2.995,246 | 0.2 | -7.1 | -1,748,480 |
| Base Financial Run with no Land Costs | 8 | 0.9 | 6.4 | -418,945 | 0.7 | 4.4 | -328,454 |
| Best Feasible Case with no Land Costs[1/] | 8 | 1.9 | 16.8 | 2,804,397 | 1.6 | 13.7 | 624,840 |
| Worst Feasible Case with no Land Costs[2/] | 8 | 0.5 | -2.0 | -2,195,246 | 0.4 | -4.9 | -948,479 |
| Base Economic Run | 24 | 0.3 | 4.3 | -2,744,313 | 0.2 | 0.4 | -1,525,111 |
| Base Economic Run | 12 | 0.5 | 4.3 | -1,934,315 | 0.3 | 0.4 | -1,319,609 |
| Basic Economic Run | 16 | 0.4 | 4.3 | -2,340,054 | 0.2 | 0.4 | -1,423,694 |
| Best Feasible Case[1/] | 24 | 0.6 | 13.1 | -1,656,847 | 0.3 | 7.0 | -1,205,652 |
| Worst Feasible Case[2/] | 24 | 0.2 | -3.3 | -3,358,389 | 0.1 | -7.1 | -1,749,292 |

[1/] Best feasible cases involve 100% increases in benefits and 40% decreases in costs.

[2/] Worst feasible cases involve 40% decreases in rent and 100% increases in operating costs.

more, but for simplicity an 8 percent rate was assumed for all project expenses.

The sensitivity analysis illustrates the tenuous financial returns which can reasonably be expected from these projects. For example, increasing benefits (rents) improves the internal rate of return for each project to the point where they are barely earning enough to pay all financial costs involved (with 100 percent increase in rents, the IRR for Grecia increases to 12.5 and Naranjo to 6.3). Yet it is highly improbable that rents could be raised in the short-, and longer-run. Base estimates were already substantially above existing levels, and experience with public markets in other countries indicates even these rates will be politically difficult to apply when merchants actually occupy the market. It tends to be even more difficult for administrators to raise rents in future periods especially if the markets are occupied by many small-scale retailers. And existing market share and growth trends of the various food retailing groups in each county analyzed in Chapter IV strongly suggest demand will decline for market stall space and will increasingly come from small merchants.

Assuming both 40 percent increases and decreases in operating costs has little impact on the financial desirability of the projects, as these costs are relatively small compared to initial costs and yearly income.

Analyzing more complex potential alternative outcomes demonstrates substantial risk involved in the investment. A best feasible case is examined which posits a 100 percent increase in rents and a 40 percent decrease in costs. Each project improves significantly, although both are still rather marginal financial investments (IRR for Grecia goes to 13.1 and Naranjo to 7.0). The worst feasible case supposes a 40 percent decrease in rents (to about actual levels) and a 100 percent increase in operating and maintenance costs. Both projects then show a negative internal rate of return and net present value. In light of earlier discussion about rents, the best feasible case should be considered highly unlikely, whereas the worst alternative is more probable, particularly if public market retailers' share of total county sales continues to decline. So in realistic probability terms, it is predicted that both projects would yield substantial financial losses over their expected lifetimes.

A series of alternative financial cases were also investigated in which initial land costs are ignored but are included in salvage values in the twenty-fifth year of the project. Resources used to acquire the land on which these markets are to be constructed have a financial and economic opportunity cost. Because they are already owned, however, local decision-makers sometimes prefer not to consider them, choosing instead to evaluate potential investment on the basis of required new cash expenditures

and expected incomes. Under these assumptions, base financial results improve but still do not suggest satisfactory performance. Internal rates of return (Grecia, 6.4 percent, and Naranjo, 4.4 percent) are still below even the eight percent subsidized rate of interest available to each government unit. The best and worst feasible cases were also examined without land costs and showed a slight improvement over previous runs. Still, the most probable outcome between these extremes does not represent an attractive investment alternative for local governments.

In conclusion, the new markets cannot realistically be expected to earn a financial return even comparable to the eight percent rate of interest that will be paid on the loan funds necessary to construct them. Over the assumed life of each project, respective local governments will be required to contribute subsidies from other income sources in order to finance the stream of benefits resulting from the use of them.

And probable subsidies are large in discounted terms. For example, using the base financial run at an eight percent discount rate, the net present value of the Naranjo investment is -$1,128,455 (colones), whereas the net present value of the gross rents to be paid by all market retailers over the life of the projects is only $721,109. The net present value of the Grecia project under similar conditions is -$1,128,945 (colones), and the discounted value of future gross rents is $2,991,456. Hence, the

Naranjo County government in discounted terms will provide each market retailer free yearly rent at about 1.5 times the rate they actually pay. In Grecia the present value equivalent of the subsidies equals about one-half of the yearly rent.

### 5.42 Economic Analysis

Identifying potential social or economy-wide benefits and assessing whether they are worth their likely cost is part of the present analysis. Given the narrow focus of public market projects discussed earlier in this chapter, another important part is to use the understanding of key components of the county food distribution subsystems gained in the analysis from Chapter IV to explore alternative solutions which could yield additional dynamic benefits for the use of given local public resources.

Councilmen of Naranjo, Puriscal, and other counties, as well as consulting firm technicians designing the respective markets, were vague about specific direct and indirect economic effects of the new markets. This makes analysis difficult. Conventional economic benefit/cost study procedures require quantification of as many as is feasible of the direct or primary benefits and costs. Selected indirect or secondary effects are often treated by adjusting price relationships to reflect real social opportunity costs.[1] Other indirect effects arising from scale

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[1]Gittinger, Economic Analysis of Agricultural Projects, p. 25.

economies and dynamic secondary impacts are difficult to quantify and therfore are generally not included in calculations.

> While it may be true that in terms of the economic development aspects of public investment the scale effects and the dynamic effects hold the greatest potential for larger-scale impacts on the economy, they are by nature so difficult to evaluate that few attempts have been made to deal with them empirically.[1]

For the present study a quantitative economic benefit/cost calculation was performed in which the same set of direct benefits from the financial analysis were assumed. No additional direct benefits were quantified because there were none that could be realistically projected. New facilities would undoubtedly reduce some spoilage and product deterioration, but new rental rates were also estimated at higher levels (compared to existing rates). It therefore can be argued that such higher rates represent a market valuation of these improved economic services.

Costs similar to those in the financial analysis were used, except for the interest rate. A shadow price of the cost of capital was determined. The going market rate of interest on a majority of consumer credit was 24 percent. The Central Bank's official rate on long-term priority commercial loans to selected businesses was 12 to 16

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[1] Ibid., p. 25.

percent.[1] From an economic or social opportunity cost perspective, the eight percent interest rate used in the financial analysis underestimates the cost of using local taxes, loan, and other government revenues to undertake a somewhat commercial investment. For this reason, a base economic run was made at 24 percent and sensitivity runs were done at 12 and 16 percent (the best and worst feasible cases were also done at 24 percent). Results in Table 5.2 are even less encouraging than those from the financial analysis and do not indicate that these are socially desirable investments. All base runs for both projects reveal benefit/cost ratios substantially less than one. Even runs for best feasible outcomes of each project show discounted costs greater than benefits. Internal rates of return are negative for worst feasible outcomes and net present values are negative under all alternative runs.

Additional indirect or secondary dynamic impacts of the projects, although difficult to quantify, were expected. In fact, projects were considered socially desirable by councilmen and IFAM analysts, largely as a result of these anticipated outcomes. It is therefore necessary to undertake a qualitative if not quantitative analysis of them. The detailed understanding of micro behavioral patterns of county food distribution participants obtained in Chapter

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[1]Banco Central de Costa Rica, Boletin Estadistico Anual (San Jose, Costa Rica: Banco Central de Costa Rica, April 1973), p. 25.

IV provides an empirical basis on which to judge the likelihood of more dynamic impacts and omissions of the proposed projects.

One generally expected dynamic benefit was to improve the overall performance of local food distribution processes for consumers, merchants, and farmers. This was referred to various times in all the feasibility studies examined and was recognized by IFAM analysis as the general justification for the prospective loans. Other more specific and explicit benefits (or objectives) of the projects were usually not carefully differentiated, perhaps as a result of the vague problem identification and analysis process identified in section 5.3.

Another sometimes explicit (and always implicit) expected benefit was to improve the quality of food and related marketing services offered by the market stall retailers. This may be interpreted as one component of the performance dimension discussed in Chapter II of achieving an abundant, nutritious, and reliable food supply at economical prices. The new physical facilities were to provide modern and sanitary surroundings, from which it was assumed that better quality food products and related marketing services would result. But feasibility studies did nothing to identify or understand business management and supply problems of the market retailers, nor to really investigate whether new physical facilities would improve services.

And on the basis of information from Chapter IV, it is difficult to predict such improvements. Inadequate physical repair problems with the existing Naranjo market resulted in product deterioration, and an improved facility would help eliminate this. But market merchants in both Naranjo and Puriscal identified procurement problems of product quality variation and transportation that likewise affected the quality of their products and services. A new building alone would do nothing to deal with this. It was likewise discovered that most nonperishable food items are marketed by retailers located in central business districts, county seat neighborhoods, and rural areas. So even if such benefits were achieved for public markets, they would only include a portion of all food marketing processes (not over an estimated 25 percent in Naranjo and 15 percent in Puriscal).

Achieving a local food supply at economical prices is also part of this performance dimension. Authors of the Naranjo feasibility study assumed that the lowest relative prices on basic food items are found in the public markets.[1] This is difficult to judge, since in Naranjo (and other counties) markets are the only location where meat, fruit, and vegetable items are retailed. Lowest relative prices, therefore, have little meaning. Analysis did show, however, that this is simply a false assumption for basic grain and

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[1]The Naranjo Feasibility Study, Chapter 3, section 3.

processed items. Lowest prices were generally found in the subsidized State (CNP) stores and in the large-volume, retail-wholesale outlets in both counties. And in Puriscal (and other counties, such as San Isidro) the largest volume meat retailers are located outside public markets in independent stores more suitable to their needs. There was no comparative price study between these and market meat outlets, although the former were clearly offering a better quality service and capturing an increasing market share. It is more likely, then, that they were offering lower prices for similar services.

On the one hand, it could therefore be argued that more progressive retailers locate outside public markets because they are physically inadequate and that new and larger public physical facilities would permit them to expand and improve services. On the other hand, results from the descriptive diagnostic showed the lack of access to operating and investment credit, and improved supply processes as more likely barriers to progressive, larger volume operations which have the ability to capture economies of scale and thus offer relatively lower prices. The grocery retailer-wholesalers examined in Naranjo (and to some extent in Puriscal) have managed to remove some of these barriers. But market, neighborhood, and rural outlets have little hope of individually doing this. Under these circumstances the financial subsidy involved in providing the new physical facilities has a significant opportunity cost of not

being used to facilitate the removal of such performance improving barriers. And it is the small-scale retailers who most need to change in order to effectively reach a majority of county consumers with improved products and services at more economical prices.

Closely related to the above is another important performance dimension discussed in Chapter II: that of stimulating the development and adoption of improved technologies and organizational arrangements that will add to increased resource productivity. Two components of anticipated impacts of the Naranjo and Puriscal market projects relate directly to this.

First, it was assumed (again implicitly) that increased productivity would result from the additional commercial space and reduced physical congestion to be provided by the projects. Yet diagnostic work described in Chapter IV found that fruit and vegetable retailers in Naranjo and Puriscal used existing sales space very inefficiently, either because of their product exhibition technology or because the physical configuration of individual stalls did not permit more functional modifications. The proposed project contemplated no changes in either of these.

Analysis also found that the mix and location of sellers within markets has an important influence on efficiently moving shopper traffic through facilities. Careful consumer shopping flow studies and specific product and stall location strategies are necessary to obtain more

efficient use of all space available within public markets. Simply providing more space for retailers to continue present methods of operating and locating would have little real impact on basic resource productivity.

Second, and of much greater significance for subsystem-wide distribution processes, the projects would have no influence on small-scale retailers' (market, neighborhood, and rural-located outlets) supply management processes. These are critical areas where improved managerial-technological, and organizational innovations could improve resource productivity. Small retailers in Naranjo County, compared to Puriscal, appear to receive better services from local retail-wholesale suppliers. Even here, however, there is little private cooperation or public action to improve vertical coordination and to lower procurement costs for both retailers and wholesalers. Retailer buying chains with a potential to bring about such changes are beginning to operate in San Jose and other large urban areas of Costa Rica.[1] But there have been no national public efforts to foment or facilitate these, and they are not even conceived as opportunities by rural county governments.

Councilmen of Naranjo, Puriscal, and other counties also expected remodeled public markets to improve the

[1]There is also one of these in Grecia, but its access has so far been limited to the larger scale retailers located in Grecia's central business district. Market and rural-located outlets for the most part are not members of the chain.

physical presentation and orderliness of their central business districts. This constitutes a part of the performance dimension of encouraging desirable settlement patterns. Deteriorated physical conditions and occasional traffic congestion surrounding existing markets in each community present undesirable images which councilmen perceived as unbecoming to their town's longer-run growth potential. This is admittedly a vague and difficult concept to measure, yet it had a pervasive influence on local policy-makers' interest in new or improved markets.

Unfortunately, in both counties the projects would have no impact on underlying problems of insufficient city and market management, and inadequate longer-range planning. Remodeled and expanded markets in both county seats would be attractive, but the problems of inadequate vehicle traffic regulation would continue. In Puriscal they would have likely increased since it was planned to move the agricultural product assembly operations inside the market, thus requiring additional trucker parking space in the sometimes already congested streets adjacent to the market.

And again from an opportunity cost perspective, it was planned to use county resources to subsidize the building of new and improved commercial space, while nothing was to be done to promote local private interest to fill such needs. In Costa Rica's growing economy, with its rapidly changing commercial activities, it is important to question the relative need of publicly providing all of the businesses

traditionally found in markets with places from which to do business. Small-scale fruit, vegetable, and meat retailers may need this because of historical precedence and present inaccessibility to resources to provide alternatives. Others, such as clothing and shoe stores and the bars (cantinas) may well have access to, or be capable of, generating resources to build their own facilities. It can thus be argued that an important longer range alternative function of county governments is to use available tax and other mechanisms to promote such changes. Such actions could be much more effective in utilizing scarce public resources to maximize the growth potential of local communities.

There are also a number of small and large villages spread throughout each county that also represent important components of existing settlement patterns. Given rural consumer preferences for convenient local purchasing alternatives for certain basic food and other items, promoting the availability of economical food retailing services in these communities may also constitute an important county government function. In the aggregate, in both counties these stores distribute a larger portion of the rural population's food supply than do retailers located in the county seat public markets. This is not to argue for publicly provided retail rental property in each village, but to consider other indirect mechanisms for

facilitating the location and improvement of such village-level services.

There is another important expected benefit of the improved public market. All the projects considered by IFAM were partially justified (again sometimes explicitly, but always implicitly) on the basis of providing production incentives and improved marketing alternatives for local farmers. This relates to the performance dimension discussed in Chapter II of increasing the level of farm income and improving the relative position of small farmers. Unfortunately most county policy-makers and consulting firm technicians frequently misunderstand farmers' marketing practices and problems. The Naranjo and Puriscal cases are good examples of two typical misconceptions.

One the one hand, the Naranjo feasibility study and loan documents (and Grecia documents) briefly state that improved public markets will facilitate local farmers' marketing practices.[1] This is simply a myth that surrounds the use of the term "public market" which historically did provide market outlets for farmers. And it is a myth on two points: first, the proposed Naranjo facility has no sales space or other special accommodations for farmers.[2]

[1] The Naranjo Feasibility Study, Section III; IFAM-Naranjo Loan Document, p. 8; IFAM-Grecia Loan Document, p. 4.

[2] Note that the Grecia project did call for a large cold storage room in which local farmers were to store products during the marketing process. Yet in Grecia County, with the exception of a few pineapple growers, there are no perishable products grown.

Thus, even if they wanted to use the market, they would have to sell products in the aisles or the streets outside. Second, the agricultural production and related marketing processes of the county have nothing to do with the public markets. Coffee and sugar cane are the two most important crops, and each has separate and highly specialized market assembly processes. And studies reviewed in Chapter III indicate minor vegetable crops grown in the county are mostly marketed through a national wholesale channel which bypasses local public markets for both functional and economic reasons. While there are problems with these processes, solutions call for national (multi-county) improvements in market information, supply management, and other new channel coordinating organizational arrangements.[1]

The other typical misconception is shown in the Puriscal project. It proposed to provide additional sales space inside the public market to accommodate transactions realized in the streets between small, local farmers and trucker-buyers. This would be an expensive arrangement because the space (given its commercial location and building costs) would be used at best once weekly and probably less frequently during nonharvest seasons.

Such an arrangement for transactions between farmers and trucker-buyers is also disfunctional and uneconomical:

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[1]PIMA, Programas para Mejorar el Sistema de Mercadeo Agropecuario en Costa Rica, Chapters 4, 5 and 6.

handling ease and costs would increase, since products would be carried inside, sold, and brought back outside to be loaded on trucks for shipment to other regions. A nearby truck parking area would also be required. Unless forced, farmers and truckers would most likely continue operating in the streets where transactions are direct and products are unloaded from farmers' vehicles directly onto those of buyers.

A third misconception not shown by either of these projects but common in other counties, is that of using public market building projects as the solution to local small farmers' marketing problems. There appears to be a potential in selected counties of Costa Rica for small farmers to provide local consumers with a limited range of food crops, especially the more common fruits, vegetables, and tuberous roots. They face two serious problems, however, neither of which has much to do with whether or not they have sales space in a local public market.

First, they must increasingly compete with relatively specialized farmers in other areas of the country who have more opportunity to produce a higher- and more-consistent-quality, and lower-cost, product.

Second, they must compete with national marketing processes and specific marketing agents' who supply a range of products and services to local merchants. The San Isidro case study showed that public-market produce retailers prefer to make informal buying arrangements with trucker-

suppliers who more consistently provide the quality and quantity of all products needed. Depending on location of a county and resulting transportation costs to national market centers, small local farmers may be able to compete in supplying certain of these products. But providing them sales space in a public market may reduce their competitive advantage if they are forced to sell to consumers at prices which will clear the local market of their occasional supply plus that which retailers consistently order from outside suppliers to satisfy the average local demand. For example, small farmers selling cabbage on the sidewalks outside the San Isidro market complained that a sort of price war went on between them and market stall retailers, and that they were thus forced to sell products at unfairly low prices. Market retailers complained, on the other hand, that lowering prices below cost was the only way to move the quantities already delivered by their San Jose supplier and the "excess" brought by the farmers. The market cleared but only by imposing a loss on farmers and retailers. Thus, coordinating local small-farmer supplies with those from national markets is a problem, and the proposed public markets will do nothing positive to treat it.

# CHAPTER VI

## CONCLUSIONS AND RECOMMENDATIONS

The demand for rural purchased food supplies and related marketing costs are potentially important, although relatively neglected variables in agricultural development research. Few subsistence farmers' homes produce their entire food supply. And as these farmers become increasingly enterprise specialized, the economic and timely availability of a purchased food supply to complement that supplied by each farm becomes important as an additional necessary input into a more modern and productive farm-level transformation process.

In addition to the above omission, few past studies on rural marketing have used units of analysis that include farmer and other rural residents, rural retailers and rural wholesalers acting as an interrelated set or subsystem directed at satisfying rural demand for food.

Marketing research and extension work in Costa Rica has provided in this study the opportunity to better understand rural micro food marketing behavioral relationships in such a subsystem context.

## 6.1 Overview of Research

The general goal of the study was to improve the foundation on which to conceptualize, study and design projects to improve the performance of rural food distribution activities in Costa Rica and other developing countries. Specific research objectives were the following:

(1) To develop a conceptual framework for studying rural food distribution subsystems as components of regional and national food systems.

(2) To describe and analyze selected marketing structure, conduct, and performance conditions of two rural food distribution subsystems in Costa Rica. To particularly examine vertical coordination and organization dimensions among rural participants, and between key rural and metropolitan distribution agents.

(3) To identify and evaluate a broad set of economic and financial costs and benefits of improving the performance of these rural subsystems via proposed public market facility projects.

(4) To develop improved procedures and an outline of future research needs for identifying and better analyzing critical elements of rural food distribution reform programs and projects for Costa Rica and other developing countries.

In Chapter II past research on food distribution and commodity marketing in developing countries was reviewed. Then an enlarged conceptual paradigm was developed to include urban and rural distribution processes. The importance of studying the demand for rural purchased food and related marketing costs as variables in agriculutral development was also discussed. Rural food distribution subsystems were thus defined to include actions of farmers and other rural consumers, and of local food retailers and

wholesalers as a highly interrelated set of activities. The suggested focal point of research was the sequential economic functions and behavior of the participants in the process of producing the final product: the rural food supply. Marketing and geography principles were also identified that are helpful in focusing research on relevant variables requisite to improving rural distribution processes. Finally, performance characteristics specific to rural subsystems were examined.

Food production-distribution subsystems are influenced by many national economic forces, although for analytical purposes, the limits of rural distribution subsystems were drawn to exclude these. Critical linkage points between rural and large urban subsystems were identified, however, since they are such important dimensions of vertical coordination in overall national food systems.

Chapter III looked briefly at forces for change in the large urban and national food system of Costa Rica. The rate and nature of population and income growth is rapidly changing the type of food production and distribution system serving the major metropolitan area of the country. There are examples of decentralized and innovative urban food distribution processes already operating. Yet there is evidence that the traditional system serving a majority of these large-urban-area consumers is not adjusting to changing demands. There are critical retailing, wholesaling, and farm-related bottlenecks that reduce the ability

of the food system to change. And it is increasingly essential in Costa Rica that the food system achieve the potential to internally generate an on-going environment of innovative evolution, in order to both respond to and promote overall economic growth and development.

Another important force for change in the overall economy is the program begun in 1970 to improve the effectiveness of local government, particularly in more rural zones of the country. Such areas have generally not kept up with the pace of development in large urban areas. A crucial reason for the lag was diagnosed as inadequate local government organization, initiative, and problem-solving capacity. One key step of the program to improve these was the creation of a national-level county government development institute--IFAM. Its objectives are to provide long-term credit and technical assistance to county governments. The policy on lending was to emphasize, when possible, financially viable projects which over the long-run would help to generate greater county income, as well as to provide needed services. Loans were to be accompanied by technical assistance in developing programs and projects, in training of county government administrative personnel, and in establishing modern methods of local tax collection and administration.

Projects to build or remodel county seat public food markets were quickly proposed to IFAM by a number of local governments. These were identified as economically and

socially desirable activities to improve county food systems. The descriptive diagnostic in Chapter IV examined two rural county food distribution subsystems in order to (1) predict and evaluate the impact of proposed markets and (2) conceptualize alternative reforms to improve performance. Considerable detailed information was examined, indicating that certain problems are present in public markets. Yet these represent only one portion of a more complex system of large county seat retailer-wholesalers, small-scale grocery stores located in rural areas and neighborhoods, as well as the public market outlets. Various operational circumstances and problems surrounding the independent and interrelated operation of this larger system of production-distribution processes were examined.

Chapter V identified and analyzed county government, IFAM, and private consulting firm behavior towards market projects. A financial and broad economic benefit and cost analysis was done on the proposed Naranjo and Puriscal projects (a financial analysis was also done on the Grecia project).

The remainder of this chapter will summarize findings and formulate conclusions about each of these important variables. It will also recommend improvements in the Naranjo and Puriscal projects, IFAM's food marketing policy, and the county government/IFAM project development and loan review procedure. Future research to develop alternative

rural food distribution reforms for Costa Rican and other developing countries will also be discussed.

## 6.2 Summary and Conclusions from Analysis of Specific Benefits/Costs

A financial analysis was performed on the Naranjo and Grecia projects, utilizing private consulting firm estimates of building and other costs, and potential rents. Base calculations of internal rates of return and net present value found each project to be a poor investment compared to the cost of borrowed funds necessary to implement them: Grecia County would earn an estimated 4.3 percent and Naranjo .4 percent return on investments having out-of-pocket interest rate cost of 8 percent. A sensitivity analysis examining simple and complex cases of alternative rental rates and operating costs illustrated the tenuous financial returns and substantial risk which can realistically be expected from the projects. Major factors here are the existing market shares and growth trends of the various food retailing groups in each County studied in Chapter IV: analysis strongly suggests that demand will decline for market stall space and will increasingly come from small merchants who will pressure county government to keep rental fees low. In all probability, then, implementing the market projects as proposed will result in retailers receiving substantial subsidies from county resources. For example, the Naranjo County government, in discounted terms, will provide each market

retailer free yearly rent at about 1.5 times the rate they actually pay.

The San Carlos and Puriscal project were not included in this financial analysis, since building costs identified in feasibility studies were only preliminary. Given the type of construction suggested for San Carlos, its costs would likely be higher than estimated, while expected rental rates were similar to those in Grecia. Hence, the probable financial return on it appears similar to those analyzed. The Puriscal market addition was more modest in its design and construction features, although building cost estimates were very preliminary. There is also some question as to whether there was an effective demand for more commercial space because existing space was used so inefficiently. So while it is difficult to accurately judge its financial viability, it is likewise a questionable investment.

Consequently, from a financial perspective a strong conclusion is that public market projects as generally designed by the private consulting firms are very poor investments. These projects particularly do not represent the type of investment which IFAM's lending policy seeks to emphasize; i.e., financially viable projects which over the long run help to generate county government income as well as to provide needed services. IFAM project and loan analysts recognized (from the cash flow budgets prepared for each project) that 10-year loan repayment

schedules for each market project required additional revenue sources--additional to market income. But since they used no discounting analysis techniques, they failed to establish the real financial viability of the projects.

The economic benefit/cost analysis results also indicate that these are not socially desirable investments. Benefit/cost ratios were less than one for all base runs. From the qualitative or dynamic economic analysis of expected secondary effects it can likewise be concluded that the Naranjo and Puriscal projects (and others) will not provide needed marketing services. Hence, the poor probable financial results of the projects can not be justified on the basis of providing socially desirable services. Furthermore, the projects would likely neither achieve narrow goals of improved results from market retailers, nor achieve broader goals of improved performance from overall county food distribution processes. Let us review the analysis supporting these conclusions.

First, consider the goal of improved quality of products and related marketing services for public market food retailers. Analysis found that project feasibility studies did not define business problems or expected linkages between new physical facilities and changes in behavior. Nor did projects designed from the studies call for anything more than expanded and remodeled buildings. In both Naranjo and Puriscal proposed facilities would have helped to reduce product deterioration due to poor

ventilation and inadequate protection from rain. But they would have done nothing to reduce retailer-identified procurement problems affecting both product quality and cost, or to provide access to operating and investment credit needed to improve business operations. Nor did they consider improved internal market management and product exhibition technologies to deal with underlying traditional retailer operation techniques. And the present analysis showed these latter management practices, instead of poor physical facilities, were more likely to cause shopper congestion and relatively inefficient use of existing markets. By only providing new commercial space and ignoring these other behavioral factors, there is no reason to predict real productivity improvements.

Second, for achieving broader goals of improved overall performance from rural food distribution subsystems, analysis in Chapter IV and V revealed that proposed projects largely ignore a much larger and complex set of food marketing processes and related problems. County seat public markets are no longer institutions which facilitate the exchange of locally produced goods and the few "imported" food items which rural consumers historically purchased. Surveys among consumers found that farm, village, and county seat families in Naranjo and Puriscal (and most areas of Costa Rica) generally purchase as much as two-thirds or more of their food supply. Results of merchant sales surveys indicated that outlets housed in

the markets handle only an estimated 15 to 25 percent of total county sales. Central business district located larger-scale grain and processed item retailers, and retailer-wholesalers, are the most important and most rapidly growing county seat outlets.

Located in various-sized rural villages and occasional dispersed sites in each township of Naranjo and Puriscal, there were also a large number of small grocery (and sometimes bar) retailers. On the average these sell an estimated 30 to 45 percent of all monthly county sales, and rural families in the lowest income group studied obtained over half of all food purchased in such local outlets. And the price study of selected basic grain and processed items found highest relative prices in these stores.

Predictions about future market shares of public market retailers are not encouraging. On the one hand, markets are becoming more specialized in meat and produce sales. If the larger retailer-wholesalers found in most county seats adopt broad staple and perishable product lines, public market retailers would find it difficult to compete. Consumers already show strong patronage preferences for the lower prices available from retailer-wholesalers. And given the rapid movement towards broad-line supermarkets in the large urban areas of the country, such changes in rural county seats seem imminent.

On the other hand, rural consumers show a preference for the convenience and credit available from the small grocery stores located relatively close by. Cross sectional income and food expenditure analysis did show that higher-income rural consumers tend to purchase relatively fewer products in these rural stores. Yet it is still not likely that future increases in income will improve the market share of public market outlets. Given the preference for local shopping convenience, if certain rural stores could offer a better selection of staple and perishable items at more economical prices, it is likely that a majority of rural consumers would shop in them.

The broad objective of improving all of these rural distribution processes for the benefit of consumers, merchants, and farmers is complex, and entails various specific and interrelated performance dimensions. One of those discussed was to achieve an abundant, nutritious, and reliable food supply at economical prices. Given consumption habits, patronage patterns, and price levels identified in Chapter IV, this aspect of improved performance can only be achieved by designing specific projects to reach product procurement and in-store management procedures of the small rural and neighborhood, as well as the public market retailers. The same argument holds for a goal of stimulating the development and adoption of improved technologies and organizational arrangements that add to increased resource productivity.

Another performance dimension examined was to encourage desirable settlement patterns. A review of the feasibility studies and informal interviews found county councilmen assuming proposed projects would facilitate their town's longer-run growth potential by removing deteriorated physical conditions and occasional traffic congestion surrounding existing markets. Analysis showed, however, that maintenance and management of markets, of central business district growth, and of vehicle traffic flows were underlying problems leading to present undesirable images of growth potential. In a dynamic sense, county governments programmed public resources to build markets but used no tax and other economic incentives to promote local private businessmen to build new and improved commercial property. And this could be an effective alternative for fomenting growth.

They likewise planned to do nothing to improve communities outside county seats. The investigation of settlement patterns identified significant clustering of the rural population into small and large villages. Ignoring these rural, nucleated settlements, the Costa Rican Census Bureau estimates that 70 percent of Naranjo's and 89 percent of Puriscal's total county population live in rural areas. Using Census Bureau maps, alternative estimates of the number and size of communities were derived; the medium (or B) size estimate, for example, indicates that only 39 percent of Naranjo's population, and some 69 percent of

Puriscal's, actually lives in dispersed rural locations. Programs promoting integral development of local economies, and improving the quality of basic public services to the rural population, must also consider smaller rural communities as focal points for certain activities. Food retailing may be one of these.

Another performance dimension studied was to use public markets to increase farm income and improve the relative position of small farmers. This is an area where the proposed Naranjo, Puriscal, and other projects can perhaps be judged most inappropriate. Analysis showed first of all that agricultural production and assembly in each county is relatively specified and that public markets usually play no function in these processes. Even relatively small commercial fruit and vegetable producers prefer to be linked as directly as possible into the national wholesale market operating in the San Jose Metropolitan Region. There are circumstances where the streets and some warehouses around county seat public markets serve as convenient transaction points for local farmers and trucker-buyers. There may be a need for specific infrastructure and facilitating regulations to serve these. But it is generally disfunctional and uneconomic to consider such processes similar to those normally carried out in public retail markets. Assembly buyers and sellers deal in larger volumes, requiring temporary warehouse and ample

parking and vehicle maneuvering space. Locating these inside or adjacent to retail markets only adds to congestion. It likewise is not an economical use of relatively expensive central business district land area because it is only occasionally used.

Finally, small farmers may have the potential to supply county consumers directly with selected, locally grown crops, thus increasing their income and lowering food costs (particularly marketing and transportation costs) for consumers. Managing this relatively unstable and incomplete supply to meet local merchant and consumer procurement practices is difficult. Simply providing farmers with periodic sales space in a county seat public market is an increasingly ineffective mechanism for dealing with these coordination problems.

## 6.3 Summary and Conclusion from Review of Project Development and IFAM Loan Procedure

A review of studies in Chapter III evaluating local government structure in Costa Rica found county councils (particularly those in rural areas of the country) in need of substantial reform. The national government has begun an important five-step program of reform aimed at improved sources of county financing (from both national and local sources) and at gradually revised local political and administrative structures. IFAM was created as a county credit and technical assistance agency. The AID Agricultural Sector Loan contained a substantial component to

assist in operationalizing IFAM. Both of these efforts are critical to the long-run improvement of the role which county governments desire to exercise: i.e., that of promoting the integral development of their local economy.

Unfortunately, the study of standard operating procedures of IFAM loan analysts and county councilmen found inadequate problem definition and alternative investment analysis processes.

On the one hand, perceptions of historical--not present and future--roles of public markets as critical county infrastructure seemed to disproportionally influence councilmen. In their desire to improve local food distribution processes, they relied mostly on these concepts and not on more factually-based assessments of marketing participants and procedures. There was likewise no formal public hearing process to at least draw out opinions and ideas about felt needs of a broad set of participants in local marketing systems.

On the other hand, IFAM loan policy was mostly oriented towards general county government administrative and financial operations. This activity is clearly within the scope of agency objectives, but putting such a high priority on it was resulting in potentially improved administration of poor financial and economic (social) investments. No one provided technical assistance in actual problem identification and project design to assure effective food

distribution investment which could at least provide needed services, if not financially viable ones.

Therefore, an important conclusion is that IFAM's present loan policy towards public markets and other potential county food distribution projects is not as effective as it could be in achieving a balanced and effective application of its overall goals. They ought to be more attentive to establishing the economic, financial, and administrative viability of specific projects. Another related conclusion is that adequate agricultural and food marketing analytical skills are lacking within both IFAM and other public agencies, and in most private firms attempting to design public market projects.

## 6.4 Recommendations

The introduction to the research in Chapter I distinguished between the focus of: Phase One immediate problem-solving work, and Phase Two documentation and longer-run analysis of alternative rural food distribution issues. Prescriptions offered in this section derive from each of these phases of research, and interaction with county and IFAM policy-markers.

### 6.41 Suggested Changes in Naranjo and Puriscal Market Projects

A detailed description of recommended changes, including preliminary architectural drawing, for each of these projects is available in the published PIMA case

studies.[1] This detail will not be repeated here; but general guidelines implicit in arriving at the suggested changes will be discussed, since these are useful for other cases in Costa Rica and elsewhere. These include the following:

A. Public market-type new or remodeled constructions must be flexible and potentially multi-use facilities. Market shares of these retailers are in a process of change, as are specific product sales technologies. Public markets are increasingly specialized in perishable product sales. If large-scale central business district retailers now selling only less perishable items move into these product lines, this could force some market outlets out of business and their space may lose its usefulness if designed exclusively and in a relatively unalterable way, suitable for just one use.

B. Remodel, with low-cost alternatives, existing Naranjo and Puriscal markets to obtain better utilization of existing space before any additional sales space is added. This has two purposes: (1) to test the future market power of present retailers under more favorable conditions of

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[1] PIMA, The Naranjo Feasibility Study, Chapter 6 and annexes.

_____, The Puriscal Feasibility Study, Chapter 6 and annexes.

improved facilities and (2) to experiment with the potential future financial viability of public commercial rental properties before expensive and generally nonrecoverable investments are made.

C. Study carefully the existing set of market occupants and rental rates, and compare these with similar charges in central business district, private locations. Consider special projects to obtain commercial bank credit for some public market users to construct their own commercial buildings.

D. Use low-cost and innovative construction techniques to improve physical attractiveness and commercial value of existing markets. Look for practical ways to improve natural ventilation and use artificial lighting as much as possible. In all cases, improve artificial lighting to give more attractive sales appeal to merchandise sold by market retailers. This includes giving practical training courses to stall operators on product exhibition techniques and importance of good lighting. Also, look for and design remodeled stalls for easy floor cleaning (including washing). The PIMA-suggested remodelings for Naranjo and Puriscal are examples of these

suggestions: new ventilation windows were to be built; clear plastic roof tiles were to be used in certain areas of the markets to improve natural lighting; the recommended floor tiles were the type which clean easily; and an adequate number of water outlets were to be installed to facilitate cleaning.

E. Develop and experiment with techniques to revitilize unused or overly congested sales space at certain entrances and interior sections of markets. In Naranjo and Puriscal suggestions were to relocate certain retailers, to open new passage ways, to open some new sales windows for certain strategic stalls. In general, carefully study the potential drawing power of retailers, and shoppers' behavior in order to discover other ways to influence consumer traffic flows outside, into, and within markets. Another technique recommended for Naranjo was a design for a functional, low-cost, intra-county bus station located on the relatively unused side of the market. This was expected to create a corridor of potential shoppers moving through the entire market and not just through one side, as the existing bus stops did.

F. Experiment with low-cost and relatively easily changeable designs for vegetable stall

configurations and product display cases which give better vertical space utilization and storage space but still are adaptable to retailers' cultural traits for serving customers. This requires that a functionally oriented engineer or architect observe and study existing practices, and be guided by low-cost and flexible design principles when experimenting with alternatives. An apparently feasible design was developed for Naranjo and Puriscal.[1]

G. As a general rule do not use interior sections of markets for agricultural product assembly processes. Look for ways to accommodate them in new decentralized locations, or in streets around or under overhangs of markets. Manage potential congestion by fixing different hours of operation for different processes, and by controlling vehicle traffic and parking flows around markets and generally within central business districts. Also consider moving certain product and vehicle traffic flow generators away from markets and central points of CBD's. Since these processes are generally unrelated to the need to attract larger numbers of shoppers, there is no real reason other than custom for locating them so

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[1] See annexes of both published case studies.

close to final retailing processes of the markets. The recommendation in Puriscal was to move the stock yards (weekly cattle fair) to a location outside of town and to build a semi-covered platform on the rear side of the market to accommodate the grain and panela assembly sales and movements of farmers and truckers. A recommendation to organize and regulate vehicle traffic around the public market in the county seat of San Isidro was implemented, and resulted in a significant reduction in congestion and improvement of the general shopping atmosphere in the central business district. Streets were converted from two to one-way and parking was permitted only on one side of most streets. Loading and unloading zones were designated in front of major businesses. In general, the results from applying and enforcing these simple rules of behavior are quite cost-effective compared to expensive building programs for public markets.

### 6.42 IFAM's Market Loan Policy

This and the following section draw from Chapter 4 and 5 and annexes 1 through 3 of the PIMA summary diagnostic report.[1] Again, more general policy goals and questions are

[1] PIMA, Proyectos de Mercadeo a Nivel Cantonal: Politica y Metodologia de Evaluacion para el IFAM--Informe Preliminar (San Jose: IFAM, 1974).

herein discussed instead of the specific institutional and operational details suggested in the PIMA publication. The following policy guidelines are thus recommended.

A. To improve rural development potential, IFAM should continue, and even reinforce, its goal of helping rural county governments identify and develop local public investment programs which have economic and financial viability. This is particularly valid, as the 1970 municipal code and financial reforms began to improve the tax and other revenue sources of local government. Additional investment funds will likely become available. But rural county government units have relatively small human resource bases, which are often lacking both experience and talent to design and manage effective development projects. This was shown to be particularly true in agricultural/commercial program areas. Training and technical assistance backstopping are therefore essential to developing needed capacity, especially in managing local services.

B. County government units should amplify their role (or radius of action) in improving local agricultural/commercial activites. County government provision of local public markets may have been an effective mechanism historically to facilitate rural-urban exchange and to motivate farmers to expand production via the pull of a local market. But this alone is no longer adequate to serve the complex and changing local agricultural marketing and food distribution system. Many of the public efforts required

are more natural functions of national government agencies; for example, market information, production and marketing extension actions, and credit programs. Local government also has an important potential role to play, however.

One key function of county councilmen should be to clearly identify local problems and bring pressure on national agencies to design effective programs to fit these needs. Rural county agricultural and food production-distribution systems have and will likely continue to change rapidly. Relatively more specialized farmers must become increasingly demand and market oriented in production discussions. They are likewise increasingly dependent upon the local availability of commercial food and production input supply, as well as a local supply of consumer goods. There are new, local and national, public facilitating actions necessary to assure a rapid and efficient provision of these goods and related marketing services.

C. IFAM should assume a short-run objective of providing technical assistance to rural county governments on designing and implementing agricultural and food marketing projects. This should also include efforts by IFAM technicians to analyze and develop a broader set of actions which county and national governments can undertake to improve the performance of rural and urban food distribution processes. This implies a more active outreach program by IFAM and closer coordination among the technical

assistance, loan operations, and investigative divisions of the agency. Given limited resources and competitive program areas within their scope of action, it is not recommended that each of these divisions employ personnel highly specialized in food marketing material. But it is necessary to establish a core of one or two specialists (probably in the investigation division) who have permanent contact people in technical assistance and loan operation divisions who could develop, over time, improved skills in evaluating and managing marketing projects.

D. IFAM should act as a national-level lobbying force for the need to establish in some existing or new Costa Rican public agency an urban and rural food distribution improvement program. A long-run goal of IFAM should be to foment the establishment of this agency and to permanently serve as a lobbying force, encouraging it to serve both rural and urban counties. It was recommended in part C that IFAM develop improved internal capabilities to deal with marketing problems and loan requests. Analysis, however, clearly indicates the need for a permanent and capable public agency for studying and encouraging changes in this relatively new area of agricultural marketing. This was shown in the study of national marketing program needs mentioned in Chapter III, in the diagnostic of rural county distribution processes in Chapter IV, and in the lack of national-level public and private sector

capabilities to promote needed changes in food distribution activities discussed in Chapter V.

IFAM was instrumental in establishing the PIMA market analysis group because it wanted to deal with rather limited problems of county governments' infrastructure investment. The food distribution problem is broader than this, however, and warrants a stronger public response because it represents a very crucial component of consumer and producer welfare: both rural and urban families purchase a majority of their food supply, of which as much as half the cost is due to providing marketing services. Improving the effectiveness of marketing-exchange activities is also strategic to encouraging future growth and evolution of agriculture and other closely related sectors of the economy.

E. Finally, IFAM should adopt a restrained policy towards financing traditional public market building projects in both rural and urban counties. These should not be rejected outright, however, because the need to modernize and organize selected existing markets appears valid. This is also an excellent entry point to developing and convincing local politicians and county managers to use improved market, central business district, city, and county planning and management techniques. For dealing with market problems, IFAM technicians should follow the general guidelines developed in recommendation 6.41 for the Naranjo and Puriscal

cases. They should also encourage counties to consider additional and/or alternative projects such as:

1. Projects to renovate central buisness districts. This would include developing the ability of a municipality through taxes or other mechanisms to foment construction of public or commercial buildings in vacant lots located in central business districts.

2. Projects to organize and regulate traffic patterns in central business districts.

3. Projects for reorganizing and relocating bus stops and stations.

4. Projects to plan and foment the construction of adequate neighborhood-located food retail facilities, or at least to plan to leave adequate space in housing projects so that private sector interests could build necessary facilities.

5. Projects to train municipal market managers.

6. Projects to train municipal market merchants in better merchandise handling, exhibition, and selling techniques.

7. Projects to provide municipal dministrators with technical assistance on applying and collecting detalle de caminos (road taxes) and other municipal taxes.

8. Projects to provide municipal administrators with technical assistance on systematic identification and priority assignment of maintenance scheduling for penetration roads.

9. Projects to purchase and operate maintenance equipment for rural roads.

### 6.43 IFAM Project Development and Loan Review Procedure

In addition to the policy and personal staffing recommendations prepared for IFAM, a specific set of operational procedures were suggested specifying critical stages and

respective administrative steps necessary to improve the quality of projects eventually financed.

Recall from Figure 5.1 and related discussion that IFAM had little influence on the first two phases of the normal market project cycle (i.e., problem identification and solution design). Only after relatively final solutions were prepared was IFAM in a position to appraise, and major alterations were both politically and technically difficult at this late stage.

Consequently it is recommended that IFAM operationally separate the marketing (and perhaps other) project development process into three critical stages, and then attempt to provide technical assistance support during each of these. A schematic overview of the three stages and suggested steps to follow in each is shown in Figure 6.1.[1] The general procedural recommendation underlying this approach is to create, throughout the project cycle, an opportunity for IFAM analysts to participate in a learning and educational process about county food distribution processes, problems, and alternative solutions. The basic goal is to develop and apply IFAM's technical assistance at strategic times so as to influence the type of project request which eventually is considered for financing. This

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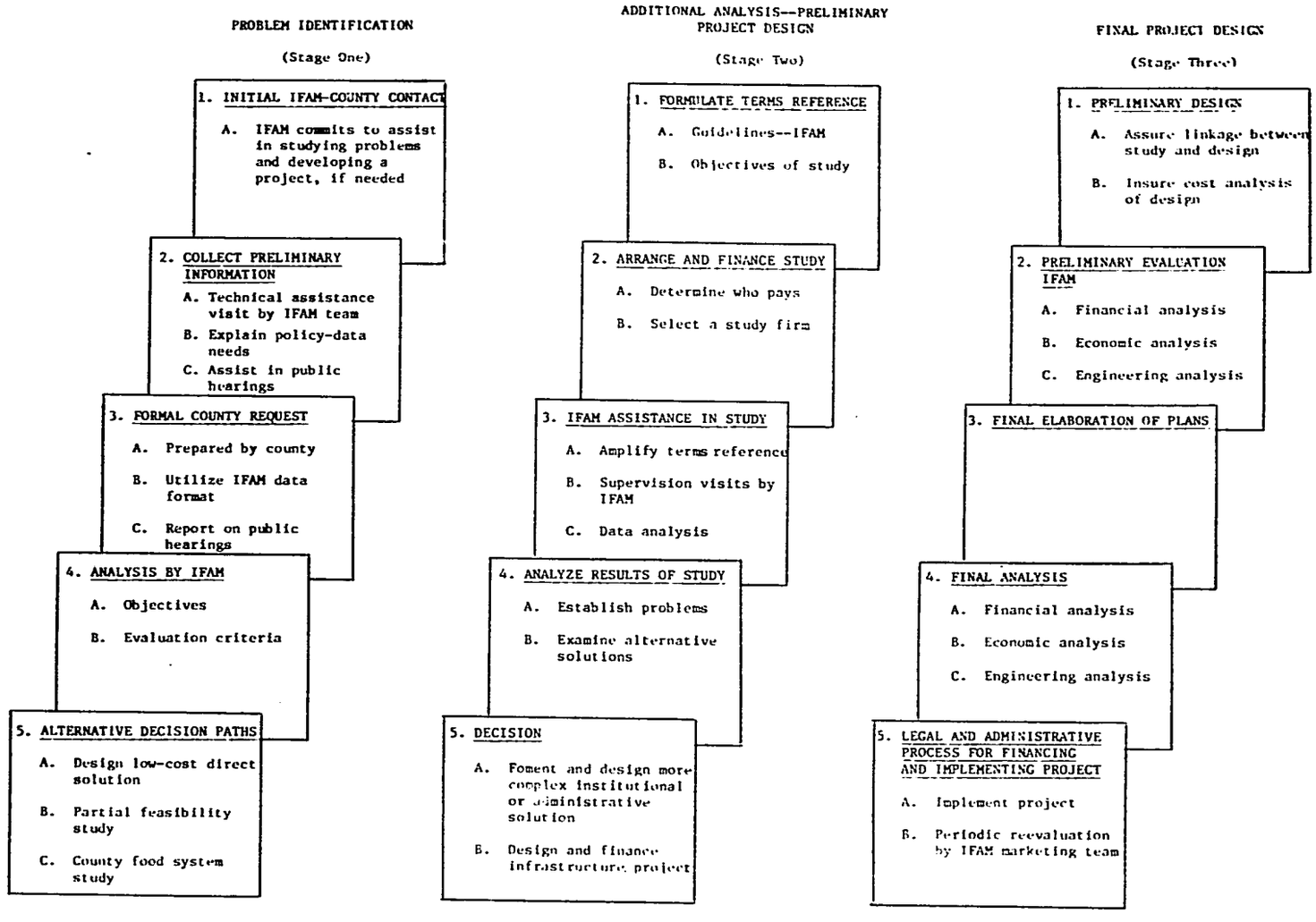
[1]Each stage and respective step suggested was discussed in detail in the PIMA "Proyectos de Mercadeo a Nivel Cantonal" publication. An annex was also prepared for each stage, showing data collection and presentation formats, study questions and areas, and architectural design criteria.

FIGURE 6.1 SUGGESTED STAGES AND PROCEDURAL STEPS IN THE IFAM-COUNTY GOVERNMENT FOOD MARKETING PROJECT DEVELOPMENT PROCESS



contrasts with existing techniques of simply waiting to analyze more-or-less finalized project requests.

The suggested separation of the overall procedure into three stages is partially arbitrary, although it is done to deal explicitly with problems identified in the existing process.

Stage One creates an opportunity for IFAM analysts to visit county governments and to help councilmen more clearly understand local marketing systems. Going through the suggested public hearings and the data requirements necessary for the formal project request will assist both IFAM technicians and county councilmen to see a more complete set of participants and needs. The end result of Stage One may permit the design of a low-cost, direct solution, or it may require additional analysis. Given the improved preliminary information made available during Stage One, it will be easier to choose an alternative decision path.

Stage Two's primary goal is to permit IFAM analysts an opportunity to effectively structure additional studies and to assist private consulting firm technicians in understanding and identifying marketing problems and alternative solutions. And it is suggested that there be a relatively continuous contact between the marketing specialists of IFAM and consulting firm personnel. Such a strategy gives maximum short-run use of the limited human

resources in IFAM and creates a longer run educational experience to improve private sector's problem-solving skills.

Stage Three likewise gives IFAM the opportunity to influence the actual preliminary and final designs of infrastructure and other projects. It is also structured to reduce the incentive for a study firm to design a high-cost project to increase its own fee. Finally, it seeks to create a mechanism to assure a linkage between study results and final project design.

### 6.44 Suggested Research to Develop Alternative Reforms

It is recommended that the Costa Rican Government develop a broad strategy and set of specific projects to improve food distribution processes, especially those serving lower income rural and urban consumers. The government is presently undertaking a national nutrition program aimed at reducing malnutrition among children and expectant mothers in lower income urban and rural areas, and at improving sanitation and health care services in rural communities.

Low-income consumers in both urban and rural areas of the country have been found to purchase a majority of their food supply from retailers located in immediate neighborhoods and rural locations. Hence, it is suggested that an important additional dimension of the national nutrition plan could be a program to 1) lower the cost of products

and related marketing services provided by small-scale, local retailers, and 2) improve the quality and assortment of products sold. Such an activity will require additional research aimed at both marketing participants and processes in large urban and rural areas, since system-wide improvements will tend to serve both. Additional urban and rural distribution subsystem descriptive research should be minimized, however. This study and other PIMA works have generally identified the structure and conduct of existing marketing agents. Additional investigation can now build on this understanding by focusing on specific problem areas identified. The general goal should be to identify and analyze alternative management, product procurement, and other organization methods for lowering costs and better coordinating the activities of retailers and wholesalers.

In rural areas, additional research is needed to better understand the economics of dispersed and village-located retailing. A series of case studies of outlets in different locations is suggested to identify specific costs of existing and new potential levels of service, given local demand. Another important research goal here is to derive a bench mark from which the cost of alternative product lines, scales of operation, and retailer-wholesaler supply arrangements can be compared. The case studies should also help to understand existing consumer patronage and product supply problems, and indicate priority areas where

action programs could improve services and lower operating costs of both retailers and wholesalers.

The most difficult part of this research is to identify alternative methods of operation of retailers and wholesalers which would, in fact, result in better services and lower final product prices. An advantage of doing a number of case studies of various retailers and wholesalers is that it often identifies different methods of operation (some more productive than others) and thereby indicates under what conditions realistic improvement might be forthcoming. On the basis of the present study, it is suggested that three possible alternative retailer-wholesaler coordination and supply mechanisms warrant further analysis of the potential costs and benefits of their use:

1. Consider the economics and management needs of forming rural (dispersed and village) retailers into a cooperative-type, cash-and-carry chain like others in Costa Rica. A case study of the defacto cooperative retail chain in Grecia would be particularly useful in identifying cost-saving areas and management problems.

2. Consider the alternative of working with existing wholesalers and wholesaler-retailers in rural county seats to develop a retailer product supply and management assistance service.

3. Consider changing selected CNP outlets in rural county seats into wholesale suppliers but providing more than a limited cash-and-carry service. They would need to provide a broader line of items, delivery service, and supplier credit.

As these alternatives are examined, it is important to look carefully at the supply arrangements available to

the rural wholesalers (whatever type is considered). This is especially necessary in the context of the large-urban-area, wholesale market reform effort which is being carried out in the San Jose metropolitan region.

Suggestions for research not specific to Costa Rica relate both to the need to better understand food distribution patterns within rural areas and to the need to further develop the national rural-urban marketing research framework identified in Chapter II. Two general research areas are recommended:

(1) Additional work is needed to develop research tools for easily identifying trade flows and relative market shares of various food merchants in rural areas, as well as for understanding the importance of purchased food and related marketing costs for rural consumers. There are few studies and data series available in developing countries to assist in this task; hence, primary data will have to be collected. Yet innovative research methods are needed to avoid unnecessary and costly detail, particularly in the general survey or descriptive research stage of identifying existing operations. The present study collected value-of-purchase information for general product groups, not for specific products. Neither were prices and physical quantities identified. This technique gave reasonably acceptable results, given resources and research needs. But the technique should still be considered preliminary and requires additional refinement.

(2) There are obviously many differences in the importance of rural purchased food and distribution practices across countries at similar and different levels of development. Research is needed to understand transformations over time in market organization as the they affect local markets and other exchange mechanisms for providing final sales points for locally produced goods to local consumers and for acting as assembly points for trans-shipment of locally produced goods to large urban demand centers. Closely related to the latter, it is further suggested that the rural-urban marketing research framework identifying commodity and distribution (large urban and rural) subsystems in a national geographical context be further developed as a tool for better understanding how regional and national markets are integrated by the actions of existing marketing agents. The economics of distributing agricultural inputs and non-food consumer goods through national, regional and local market channels also needs to be included as a variable, as does the impact which transportation networks have on market integration and evolution.

# APPENDICES

# APPENDIX A

## SAMPLING PLANS FOR RETAILERS AND CONSUMERS

Data in Table A1 show the universe and sample size of the merchant surveys. Maps in Appendix B show the location of the universe of merchants and the geographical boundaries of the "central business district."

The consumer sampling plan followed a random sampling procedure, with a systematic two-stage, area-stratification. Using current Costa Rican census tract maps that show each household, each township of Naranjo and Puriscal Counties was divided into groups or strata of 30 households. Natural barriers (rivers, mountains, etc.) and roads were followed to make each strata easily accessible. In the urban areas of each county (in the county seat), every second strata was selected and each fifth household within it was sampled. In the rural areas every third strata was selected and each fifth household within it was sampled. This yielded an approximate seven percent sample in urban areas and a five percent one in rural areas. This sampling plan is commonly used by the Census Bureau and the University of Costa Rica, and provides a manageable and relatively inexpensive method for covering an entire region with a random sampling procedure. Note that due to alternative

Table A.1 Number of Business Surveys Conducted Among Food Merchants in Naranjo and Puriscal Counties

| Type and Location of Food Merchant | Naranjo County | | Puriscal County | |
|---|---|---|---|---|
| | Universe | Survey Sample Size | Universe | Survey Sample Size |
| Inside Public Market in County Seat Town | | | | |
| Grain and Processed Item Stalls | 4 | 4 | 8 | 7 |
| Fruit and Vegetable Stalls | 12 | 10 | 14 | 12 |
| Meat Stall | 4 | 3 | 4 | 3 |
| Fish Stalls | 1 | 1 | 0 | 0 |
| Inside Commercial Business District of County Seat Town | | | | |
| Small Grocery Stores | 6 | 3 | 6 | 3 |
| Small Grocery and Liquor Stores | 2 | 2 | 1 | 1 |
| CNP (State Store) | 1 | 1 | 1 | 1 |
| Meat Stores | 0 | 0 | 4 | 3 |
| Remaining Area of County Seat Town | | | | |
| Small Grocery Stores | 16 | 6 | 13 | 5 |
| Small Grocery and Vegetable Stores | 3 | 1 | 0 | 0 |
| Rural Area of County (Nucleated Plus Dispersed Population) | | | | |
| Small Grocery Stores | 41 | 13 | 12 | 9 |
| Small Grocery and Liquor Stores | 39 | 23 | 92 | 39 |
| Meat Stores | 0 | 0 | 2 | 2 |
| TOTAL | 133 | 69 | 159 | 87 |

Source: Naranjo and Puriscal County Business License Records, Costa Rican Census Maps, and PIMA Retail Survey.

demands on the PIMA staff, during the Puriscal study it was necessary to reduce the number of rural stratas sampled. A judgment sampling process was used to eliminate selected strata: a 2.5 percent sample resulted. While this theoretically changed the random selection plan, it is not considered serious because while fewer strata were sampled, at least 5, and usually 10, households were included in each township (Table A2).

Table A.2 Number of Consumer Surveys Conducted Among Urban and Rural Consumers in Naranjo and Puriscal Counties

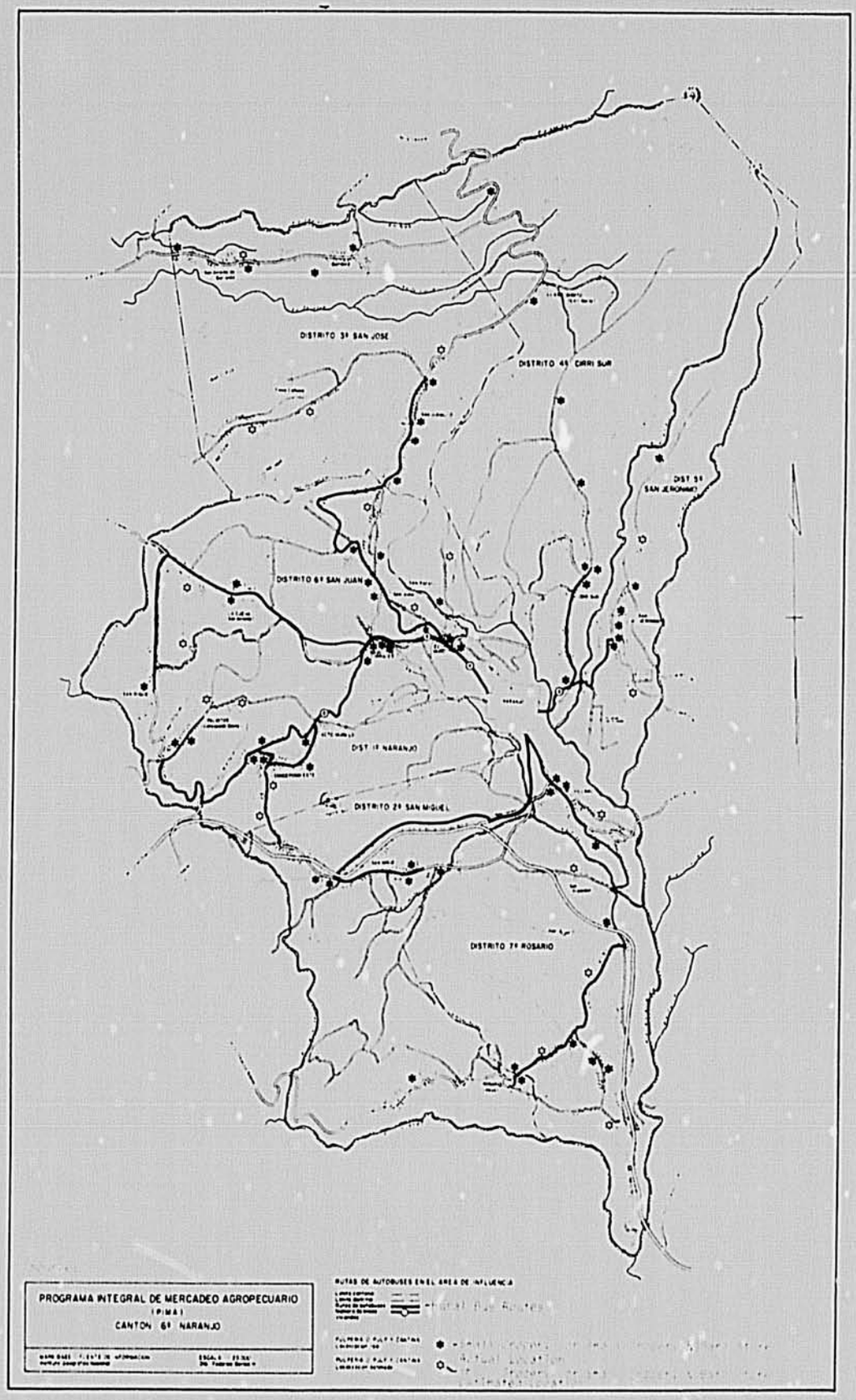
| Township Number | Naranjo and Puriscal Townships<br>N = Naranjo<br>P = Puriscal | Number of Questionnaires in County Seat Towns | | Number of Questionnaires in Rural Villages[1] | | Number of Questionnaires Among Dispersed Rural Population[1] | | Total Number of Questionnaires in Each Township | |
|---|---|---|---|---|---|---|---|---|---|
| | | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal | Naranjo | Puriscal |
| 1. | N--Naranjo<br>P--Santiago | 78 | 43 | 21 | 2 | 14 | 4 | 113 | 49 |
| 2. | N--San Miguel<br>P--Mercedes Sur | | | 6 | 3 | 4 | 27 | 10 | 30 |
| 3. | N--San Jose<br>P--Barbacoas | | | 11 | 5 | 4 | 10 | 15 | 15 |
| 4. | N--Cirri Sur<br>P--Grifo Alto | | | 4 | 4 | 11 | 6 | 15 | 10 |
| 5. | N--San Jeronimo<br>P--San Rafael | | | 9 | 5 | 1 | 5 | 10 | 10 |
| 6. | N--San Juan<br>P--Candelarita | | | 9 | 5 | 16 | 5 | 25 | 10 |
| 7. | N--Rosario<br>P--Desamparaditos | | | 0 | 3 | 15 | 2 | 15 | 5 |
| 8. | P--San Antonio | | | 0 | 4 | 0 | 6 | 0 | 10 |
| | TOTAL | 78 | 43 | 60 | 31 | 65 | 65 | 203 | 139 |

[1] See Chapter 4, page 4-9 for the definition of "villages" and "dispersed rural population."
Source: 1973 PIMA Consumer Surveys.

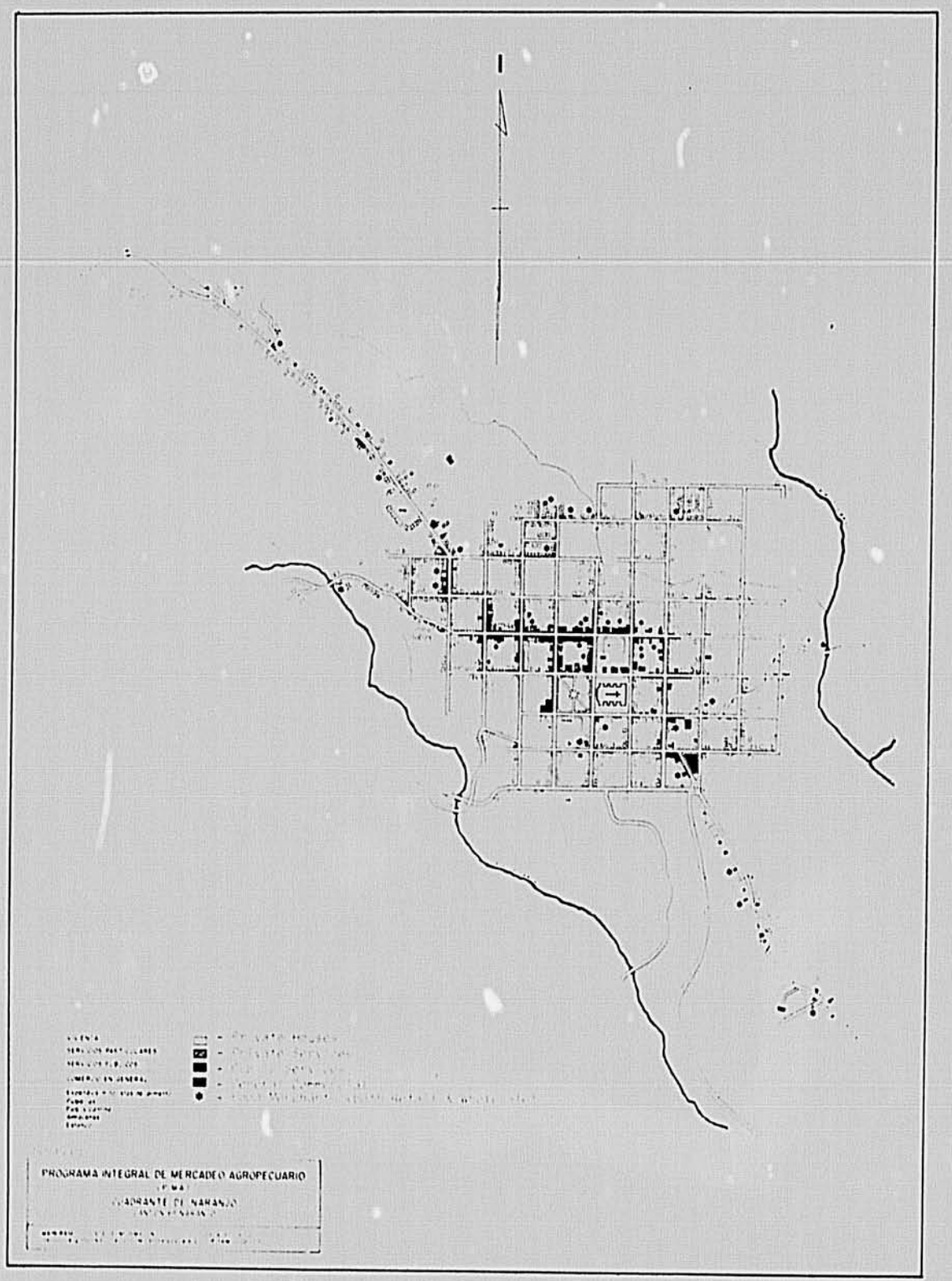
# APPENDIX B

## MAPS OF NARANJO AND PURISCAL COUNTIES

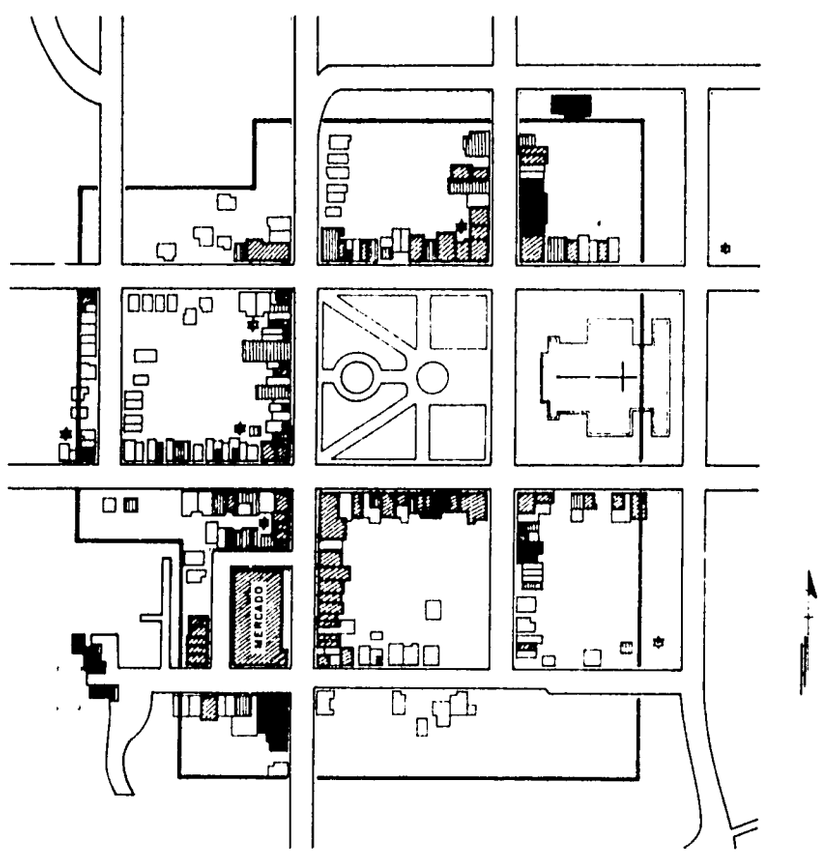
Map. B.1 Naranjo County Showing Rural Bus Routes and Locations of Rural Food Stores


DISTRITO 3º SAN JOSE
DISTRITO 4º CIRRI SUR
DIST 5º SAN JERONIMO
DISTRITO 6º SAN JUAN
DIST 1º NARANJO
DISTRITO 2º SAN MIGUEL
DISTRITO 7º ROSARIO
PROGRAMA INTEGRAL DE MERCADEO AGROPECUARIO
(PIMA)
CANTON 6º NARANJO
RUTAS DE AUTOBUSES EN EL AREA DE INFLUENCIA

Map B.2 Naranjo County Seat Land Use


PROGRAMA INTEGRAL DE MERCADEO AGROPECUARIO

Map B.3 Demarcation of Area Included in Central Business District of Naranjo

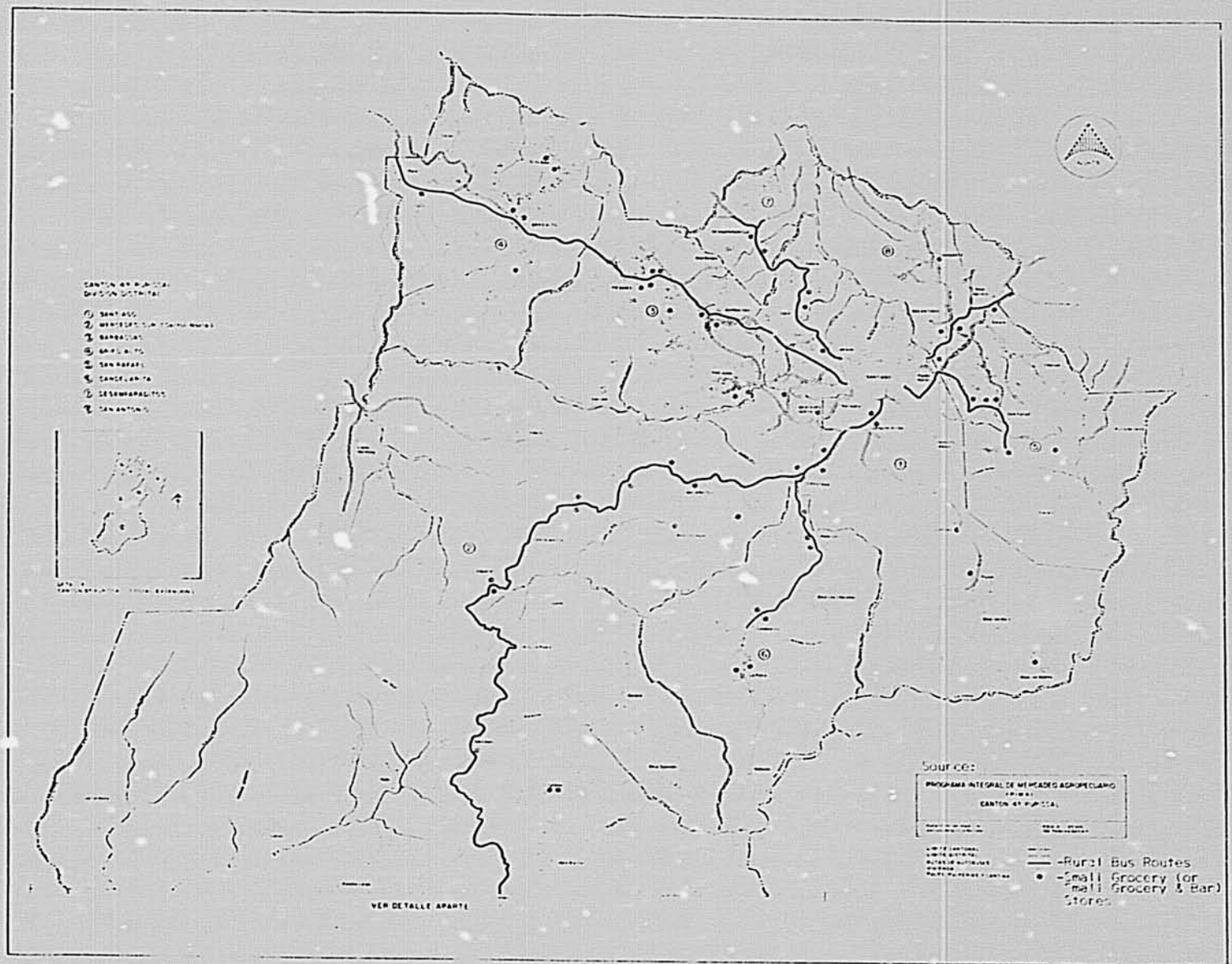



LAND USE

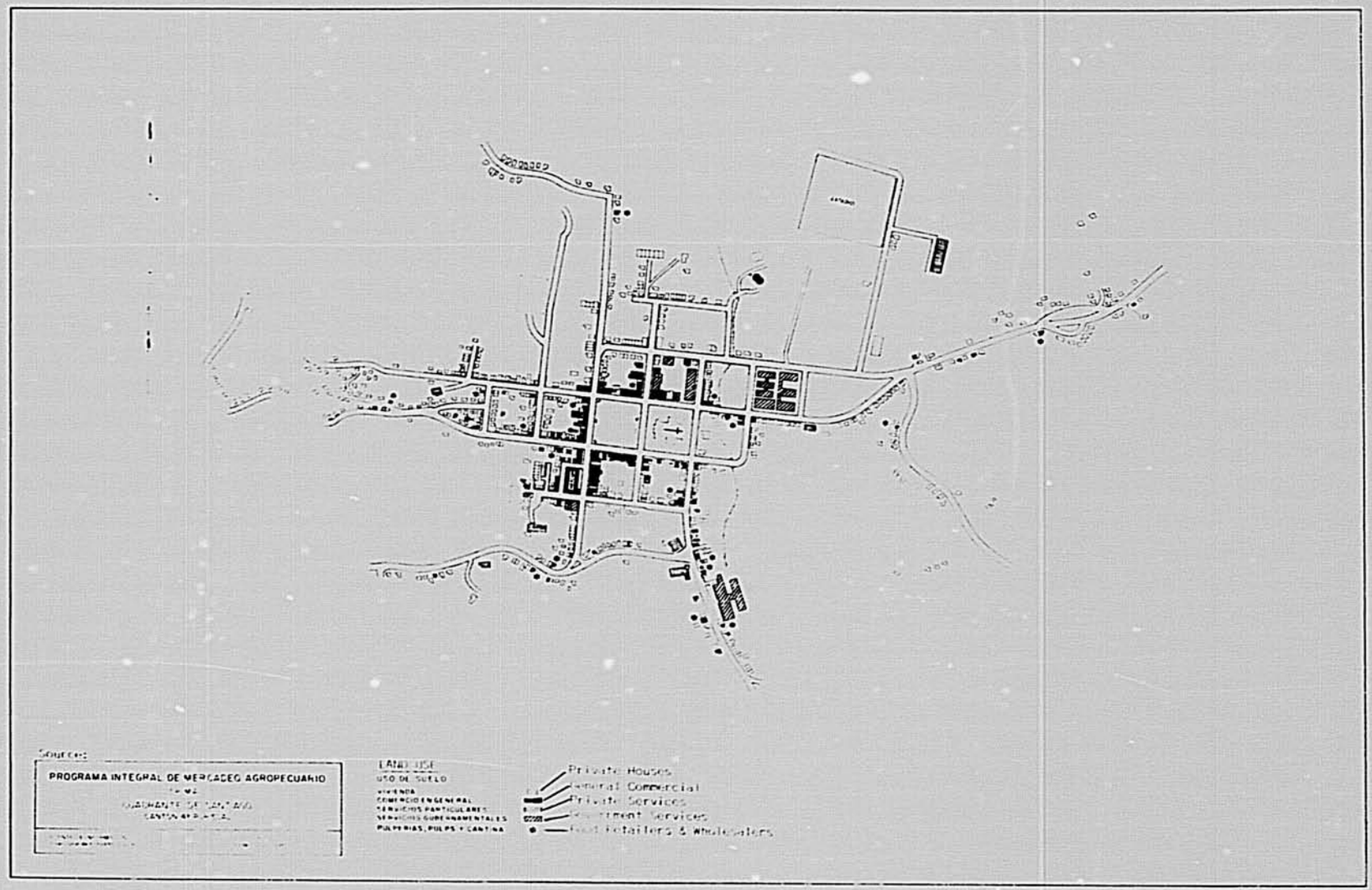
ZONA COMERCIAL DE SANTIAGO

| | | |
|---|---|---|
| Comercio en general | | - General Commercial |
| Servicios Particulares | | - Private Services |
| Servicios Gubernamentales | | - Public Services |
| Pulperias, Pulp y Cantinas | | - Food Retailers & Wholesalers |

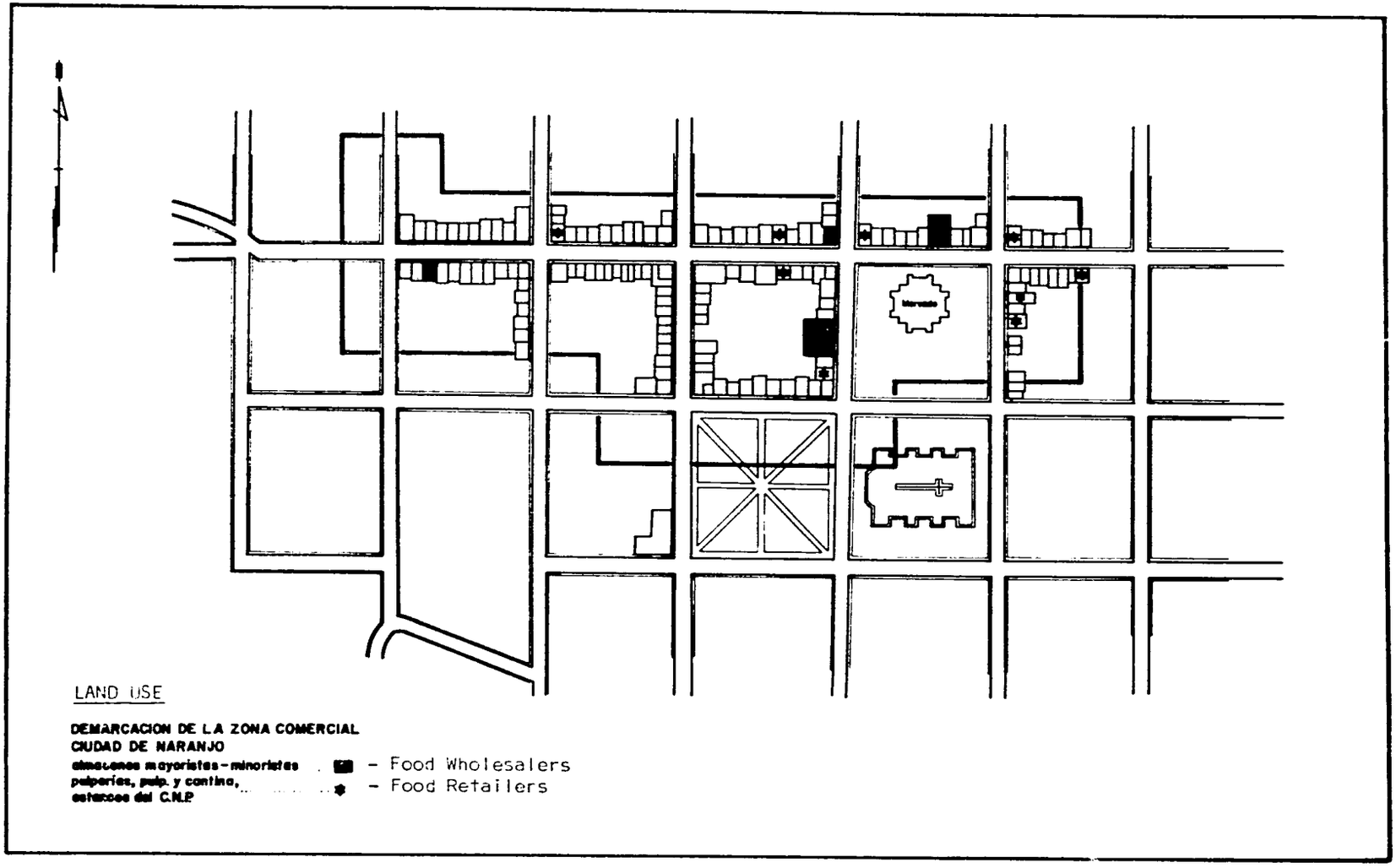
Map B.4 Puriscal County Showing Rural Bus Routes and Location of Rural Food Stores


Source:
-Rural Bus Routes
-Small Grocery (or Small Grocery & Bar) Stores

Map B.5 Puriscal County Seat Land Use


PROGRAMA INTEGRAL DE MERCADEO AGROPECUARIO
LAND USE
USO DE SUELO
VIVIENDA
COMERCIO EN GENERAL
SERVICIOS PARTICULARES
SERVICIOS GUBERNAMENTALES
PULPERIAS, PULPS Y CANTINA
Private Houses
General Commercial
Private Services
Government Services
Food Retailers & Wholesalers

Map B.6 Demarcation of Area Included in Central Business District of Puriscal


LAND USE
DEMARCACION DE LA ZONA COMERCIAL
CIUDAD DE NARANJO
almacenes mayoristas-minoristas
pulperías, pulp. y cantina,
estancos del C.N.P
- Food Wholesalers
- Food Retailers

# APPENDIX C

## ESTIMATION PROCEDURE FOR RURAL SETTLEMENTS AND RESPECTIVE SETTLEMENTS

Since the Costa Rican Census Bureau does not collect population statistics on rural settlements (communities outside county seats or cabeceras) a procedure was developed for both identifying rural villages and estimating their population. The procedure was decided upon after comparing the accuracy of housing and other information shown graphically on the Census Bureau township maps, and the actual number of houses identified in the 1973 Housing Census. The basic township census maps were updated by the Census Bureau for the 1973 Population and Housing Census on the basis of aerial photography and field visits. As discussed in Appendix A, the sampling frame for the consumer surveys undertaken was obtained by dividing the township maps of each county into sampling strata, comprised of approximately 30 houses each. Thus, an actual count of the number of houses shown on the maps in each sampling strata was made at the time of the field work. The totals of these for each township were later compared with the actual number of houses identified in the Census. This (Table C.1) indicates a high degree of

Table C.1 A Comparison of Information Found on Census Maps and in the Actual Census about the Location and Number of Houses in Naranjo and Puriscal Counties

| County and Township | Number of Houses Located on 1973 Census Maps | Number of Houses Identified in 1973 Census | Average Number of Persons per Household 1973 Census |
|---|---|---|---|
| Naranjo | | | |
| 1) Naranjo | 1,670 | 1,743 | 5.7 |
| 2) San Miguel | 238 | 231 | 5.9 |
| 3) San Jose | 292 | 310 | 5.7 |
| 4) Cirri Sur | 281 | 280 | 5.7 |
| 5) San Jeronimo | 186 | 177 | 5.9 |
| 6) San Juan | 434 | 431 | 5.9 |
| 7) Rosario | 231 | 225 | 6.6 |
| TOTAL | 3,332 | 3,397 | 5.9 |
| Puriscal | | | |
| 1) Santiago | 1,130 | 1,271 | 5.6 |
| 2) Mercedes Sur | 1,016 | 1,379 | 6.3 |
| 3) Barbacoas | 399 | 368 | 6.3 |
| 4) Grifo Alto | 249 | 197 | 6.3 |
| 5) San Rafael | 307 | 341 | 6.1 |
| 6) Candelarita | 219 | 208 | 5.8 |
| 7) Desamparaditos | 91 | 97 | 5.5 |
| 8) San Antonio | 204 | 179 | 5.3 |
| TOTAL | 3,615 | 4,040 | 6.0 |

Source: Census Bureau Township Maps and 1973 Population Census.

accuracy of the number of houses shown on the census maps for all townships of Naranjo County and an acceptable degree for Puriscal, especially for townships other than Mercedes Sur.

On the basis of this comparison, it was judged feasible to do an actual count of the number of houses shown on the maps to be concentrated in different nucleated locations throughout each township.[1] These would then be multiplied by the corresponding population per household factor, in order to derive a reasonable estimate of the amount of actual concentration or nucleation of the population classified by the Census Bureau as rural.

Two problems remained, however. Since no legal or administrative recognition is given to rural communities in Costa Rica, it was necessary to establish a decision criterion for deciding whether or not a concentration of homes shown would be classified as a rural community. The information provided on the maps also indicates where rural churches, schools, and grocery stores are located. So it was decided that in order to classify the various rural concentration of homes shown on the maps as rural communities, it was first necessary for each grouping of homes to also have (at least) a church, a school, and one grocery

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[1]Distances between houses on the maps may be misrepresented when elevation changes, since the maps show only two dimensions. But it was assumed that within the relatively short distances to be examined around each nucleation the elevation differences would not seriously bias results.

store located within the physical proximity of the housing group. Concentric circles were then drawn to scale on the maps around these groupings at 100 meter radii (up to 1,000 meters), and the number of houses located within each radii group were counted and recorded. When expanded by a population factor, these are good estimates of the population found within the area circumscribed by the different circles.

The second problem arises here because there is no official definition of the physical limits of these communities, and it is impossible to establish a decision criterion as to where to make a cut-off in order to say everything within a given area is the population of that community. In order to manage this limitation and still make useful estimates of the degree of nucleation of the rural population, three estimates were made of the population of each community. These alternative estimates depend on the amount of population located within various distances of the visual geographical centers of the identified communities.

This information was prepared for all the observable cases in the townships of Naranjo and Puriscal counties. It represents the estimated universe of rural village communities. A close examination of these permitted a breakdown into two more homogeneous categories which constitutes the breakdown between a small and large village. These are as follows:

a) Large villages have a church, rural school, two stores and at least 30, 60, and 90 houses within the 300-, 600-, and 900- meter radius circles, respectively, drawn on the Census maps.

b) Small villages have a church, rural school, one or more food stores, and less than 30, 60, and 90 houses within the 300-, 600-, and 900-meter radius circles, respectively, drawn on the Census maps.

For both small and large villages, three alternative population estimates were made according to the size of the circle enclosing the community. Thus, estimates of size A villages have their physical boundary set by a 300-meter radius circle, size B by a 600-meter radius circle, and size C by a 900-meter radius circle.

Note also that there appears to be an additional category of rural concentration which has a very small number of houses (between 2, and 10 to 15) but still a rural school and one grocery store located in it. As indicated in Table 4.2, Chapter IV, there are four of these situations in Naranjo and 18 in Puriscal. Without field work it is extremely difficult to say whether these types of nucleations really warrant being called a rural community; therefore, no population density estimations were prepared for them. There is a much stronger case for classifying as rural communities those whose nucleations fall into the

small and large village categories. They have social (church and school) and economic (store) functions as well as a significant number of people living within them, even when using the smallest sized estimate category (A), which covers only .28 km (See Table C.2). Large villages in both counties have an estimated population of approximately 300 and smaller ones some 115 to 125.

Table C.2 Estimated Rural Population Distribution by Type and Size of Rural Community for Naranjo and Puriscal Counties

| Size Estimate | County and Number of Communities | Rural Population | | | | | |
|---|---|---|---|---|---|---|---|
| | | Large Villages | | Small Villages | | Dispersed | |
| | | Total | % County Population | Total | % County Population | Total | % County Population |
| | Naranjo | | | | | | |
| A | 300-Meter Radius | 2,145 | 11 | 1,101 | 6 | 10,621 | 54 |
| | Average Population Per Community (.28 $km^2$) | (306) | | (126) | | | |
| B | 600-Meter Radius | 4,143 | 21 | 1,927 | 10 | 7,707 | 39 |
| | Average Population Per Community (1.1 $km^2$) | (592) | | (241) | | | |
| C | 900-Meter Radius | 5,525 | 28 | 2,878 | 15 | 5,374 | 27 |
| | Average Population Per Community (2.5 $km^2$) | (789) | | (361) | | | |
| | Puriscal | | | | | | |
| A | 300-Meter Radius | 1,236 | 5 | 1,362 | 6 | 18,964 | 79 |
| | Average Population Per Community (.28 $km^2$) | (309) | | (114) | | | |
| B | 600-Meter Radius | 1,986 | 8 | 2,832 | 12 | 16,744 | 69 |
| | Average Population Per Community (1.1 $km^2$) | (496) | | (236) | | | |
| C | 900-Meter Radius | 2,646 | 11 | 4,140 | 17 | 14,766 | 61 |
| | Average Population Per Community (2.5 $km^2$) | (661) | | (345) | | | |

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